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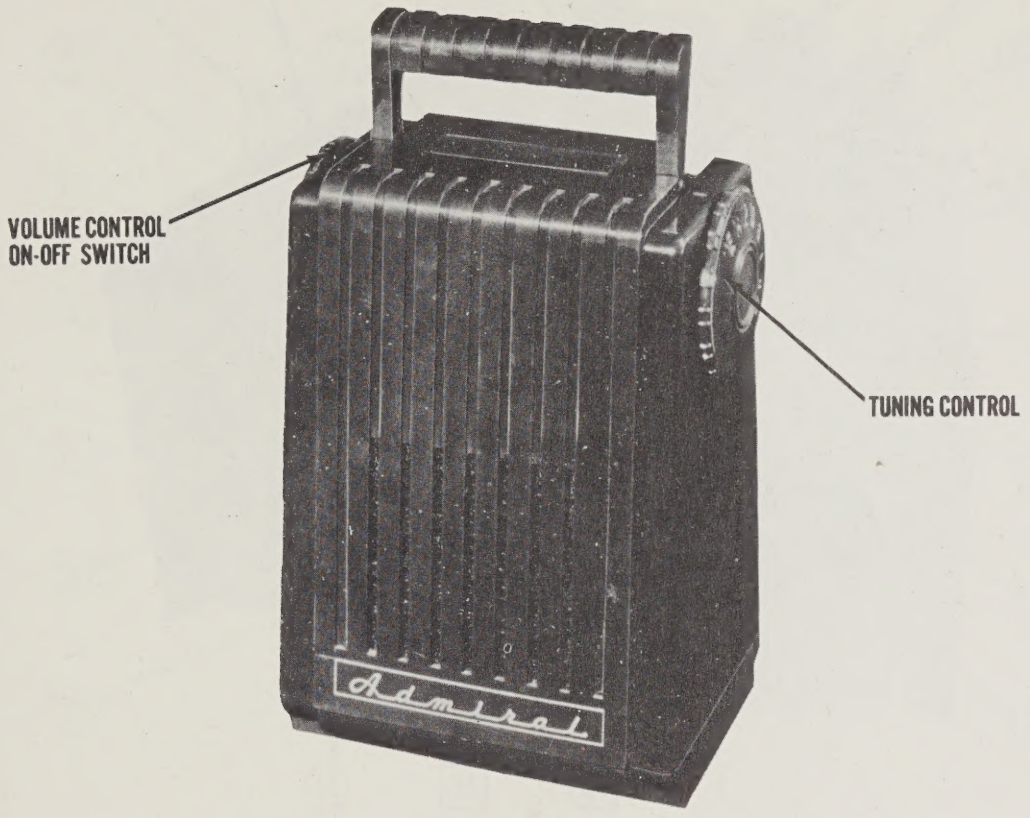
TELEVISION COURSE—INSTALLMENT No. 12

TRADE NAME	MODEL	FOLDER NO.
Admiral	4D11, 4D12, 4D13 (Ch. 4D1)	4819-1
Admiral	9B14, 9B15, 9B16 (Ch. 9B1)	4819-2
Aircastle	5027	4819-3
Air King	A-520	4819-4
Arvin	160T, 161T (Ch. RE-232)	4819-5
Automatic	Tom Thumb Camera-Radio	4819-6
Concord	1-516, 1-517	4819-7
Firestone (Air Chief)	4-A-12 (Code No. 213-8-8370)	4819-8
Globe	85	4819-9
Hoffman	C-506, C-507	4819-10
Learadio	1281-PC (Ch. 7B)	4819-11
Masco	MA-25NR	4819-12
Mercury	8MM890 (Ch. 8E90), (8M-18805-B)	4819-13
Motorola	58R11, 58R12, 58R13, 58R14, 58R15, 58R16 (Ch. HS-116)	4819-14
National	NC-183R, NC-183T	4819-15
Philco	49-900-E, 49-900-I	4819-16
RME	HF10-20	4819-17
Regal	BP48	4819-18
Silvertone	8051 (Ch. 101.839)	4819-19
Silvertone	8090 (Ch. 101.821)	4819-20
Silvertone	8130 Television Receiver	4819-21
Sparton	4AW17-A (Ch. 417A)	4819-22
Stromberg-Carlson	1235 Series	4819-23
Tele-Tone	157, 166 (Ch. AE)	4819-24
Trav-Ler	6040	4819-25
Truetone	D3840	4819-26

ADMIRAL CHASSIS MODEL
4D1 BATTERY OPERATED



ADMIRAL CHASSIS MODEL
4D1 BATTERY OPERATED

ADMIRAL MODEL 4D11

TRADE NAME	Admiral, Models 4D11, 4D12, 4D13 (Ch. 4D1)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago, Ill.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1U5 Det.-AVC-AF, 3S5 Power Output
POWER SUPPLY RATING	1.5 Volts "A" Supply and 67.5 Volts "B" Supply 240MA @ 1.5 Volts DC and 10.5MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to large stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output.
2	.1 MFD.	"	1630KC	"	"	A5	" " " "
3		Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

ADMIRAL MODEL 4D11

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ADMIRAL PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1U5	1U5	6BW	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	4	150		PR8150-4	BR415		UT41	Power Supply Bypass-Note
6	.25	200	64B-128	484-.25	DT2P25	ST-2-25	TC-2	RF Bypass Power Supply-"
7	.002	600	64B1-14	684-002	DT6D2	ST-6-002	TC-22	Output Plate Bypass
8	.01	600	64B1-10	684-01	DT6S1	ST-6-01	TC-11	AVC Filter
9	.1	200	64B1-30	484-.1.	DT2P1	ST-2-1	TC-1	Osc. Decoupling-Note
10A	5000	300	*					Audio Coupling-Cer.
B	100	300						Output Grid Filter
C	6000	300						AF Screen Bypass
D	2000	300						Audio Coupling
E	150	300						Diode RF Filter
11	100	300	65B6-3	1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.-Cer.

*Item #10A, B, C, D, E are combined into one unit and may be obtained under part number 63A2.
Note -Not used in all models.

CONTROLS

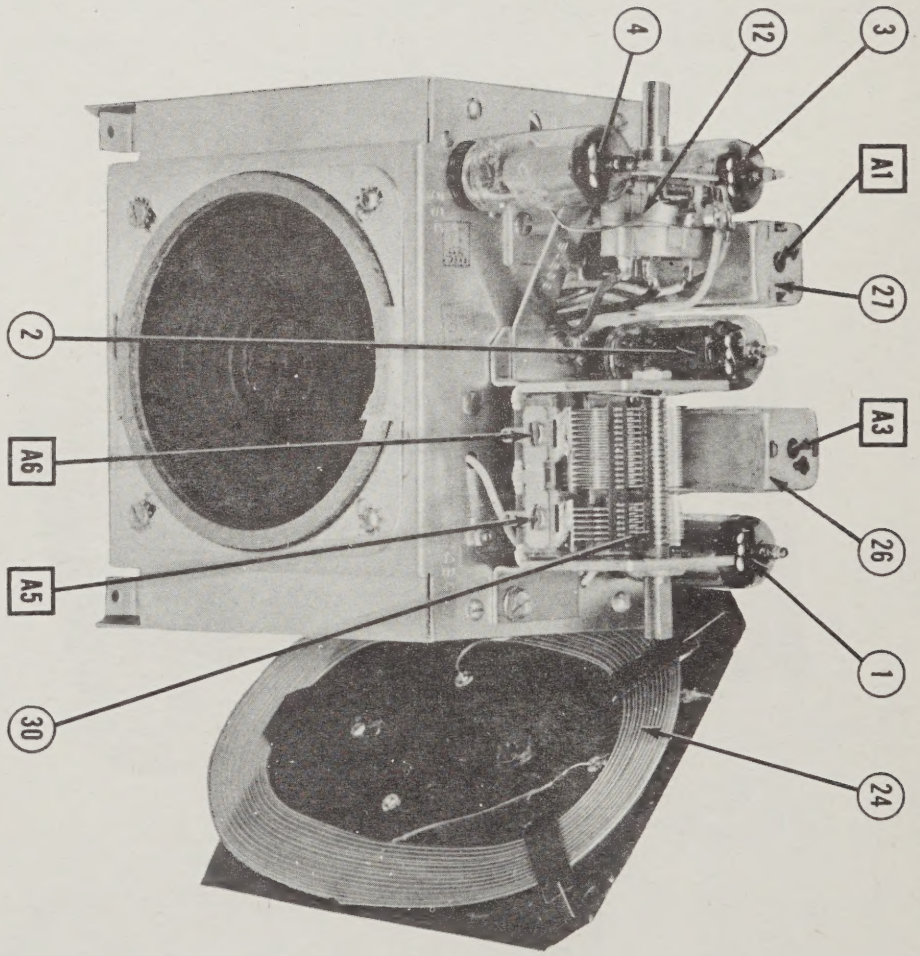
ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	
12A	1 Meg.	½	75B1-22	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 12A per instructions
C	Switch		" "	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ADMIRAL PART No.	IRC PART No.	
13	68KΩ	½		BTS-68K	Blue-Gray-Or. Osc. Grid
14	680Ω	½		BTS-680	Blue-Gray-Br. Bias
15	10KΩ	½	60B3-103	BTS-10K	Br.-Blk.-Or. Conv. Screen Decoup.-See Note
16	3.3 Meg.	½	60B3-335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
17	10 Meg.	½	60B3-106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
18	4.7 Meg.	½	60B3-475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen
19	1 Meg.	½	60B3-105	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate
20	2.2 Meg.	½	60B3-225	BTS-2.2 Meg.	Red-Red-Grn. Output Grid

Note-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ADMIRAL PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
21	9200Ω	3.6Ω	460Ω	.4Ω	Part of 78C33	A-3879†	T22847†	A-2900†	†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ADMIRAL PART No.	JENSEN PART No.	QUAM PART No.	
22	FIELD PM	VC IMP. 3.6Ω	78C33		3A07	
23	CONE DIA. 3½"	VC DIA. 9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	
24	Loop Ant.		2Ω	69B38		
25	Osc. Coil	1.4Ω	7Ω	69A39-1		
26	Input IF	21Ω	21Ω	72B28-1	16-6668	
27	Output IF	21Ω	21Ω	72B28-1	16-6669	

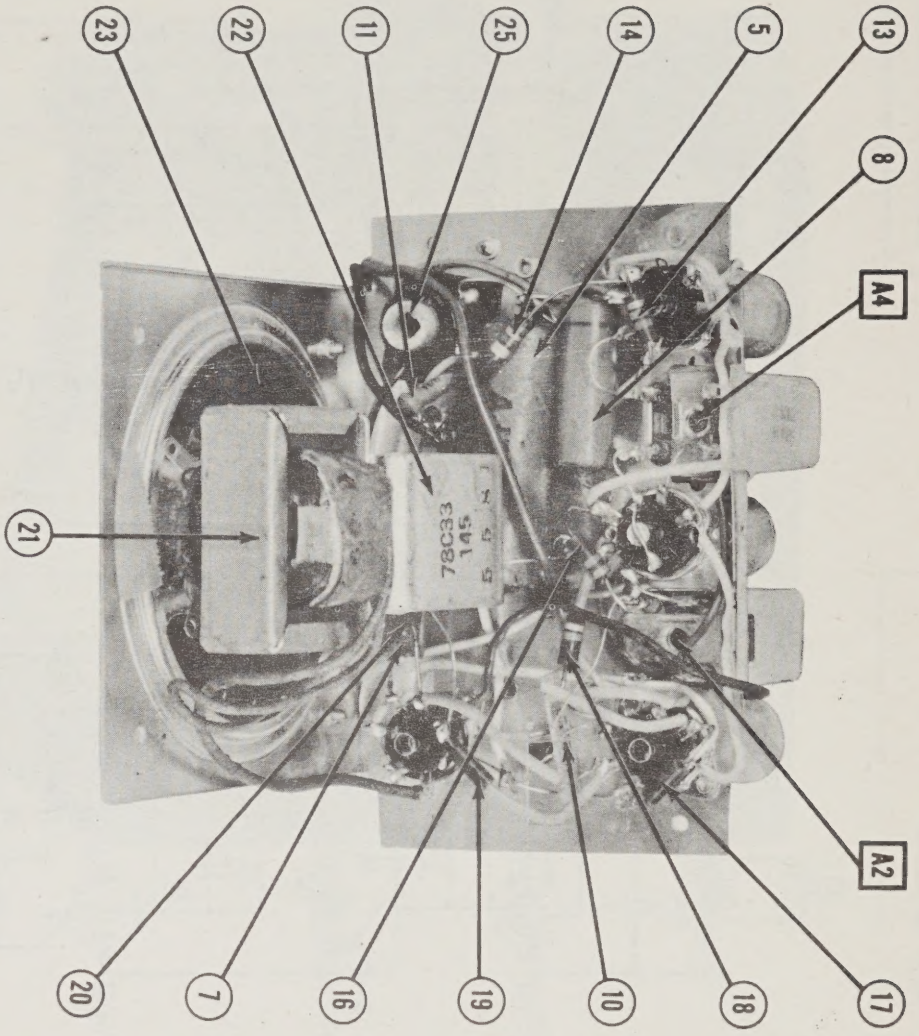
BATTERIES

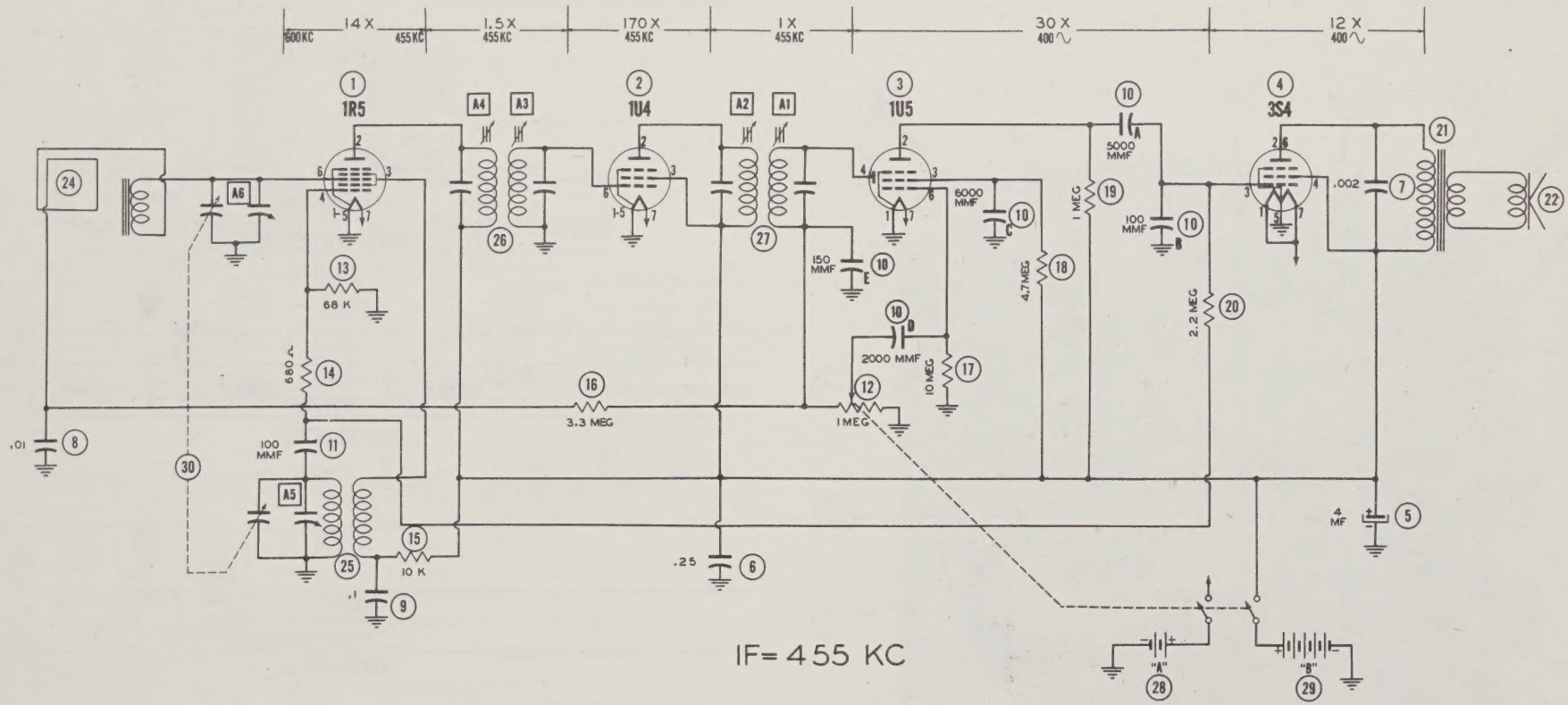
ITEM No.	VOLTAGE	ADMIRAL PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
28 29	1.5V "A" 67.5V"B"		950	#467		2R	XX45		2 Used in Parallel

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
30	2 Gang Var. Cap.	68B13	(29-387MMF, 21-128MMF)
	Cabinet	34D16-5	4D11 (Maroon)
	"	34D16-10	4D12 (Ebony)
	"	34D16-15	4D13 (Ivory)
	Knob (Tuning)	33B29-1	4D11 (Maroon)
	" "	33B29-3	4D12 (Ebony)
	" "	33B29-5	4D13 (Ivory)
	" (Volume)	33B29-2	4D11 (Maroon)
	" "	33B29-4	4D12 (Ebony)
	" "	33B29-6	4D13 (Ivory)

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	63VDC	63VDC	-7.4VDC§	0V.	0V.	1.4VDC
2	1U4	0V.	63VDC	63VDC	0V.	0V.	0V.	1.4VDC
3	1U5	0V.	6.8VDC	3.2VDC	-.2VDC	0V.	0V.	1.4VDC
4	3S4	1.4VDC	60VDC	-.7VDC	63VDC	0V.	60VDC	1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	80KΩ	80KΩ	68KΩ	0Ω	4.3 Meg.	*
2	1U4	0Ω	80KΩ	80KΩ	0Ω	0Ω	21Ω	*
3	1U5	0Ω	1 Meg.	4.7 Meg.	1 Meg.	0Ω	10 Meg.	*
4	3S4	*	90KΩ	2.2 Meg.	80KΩ	0Ω	80KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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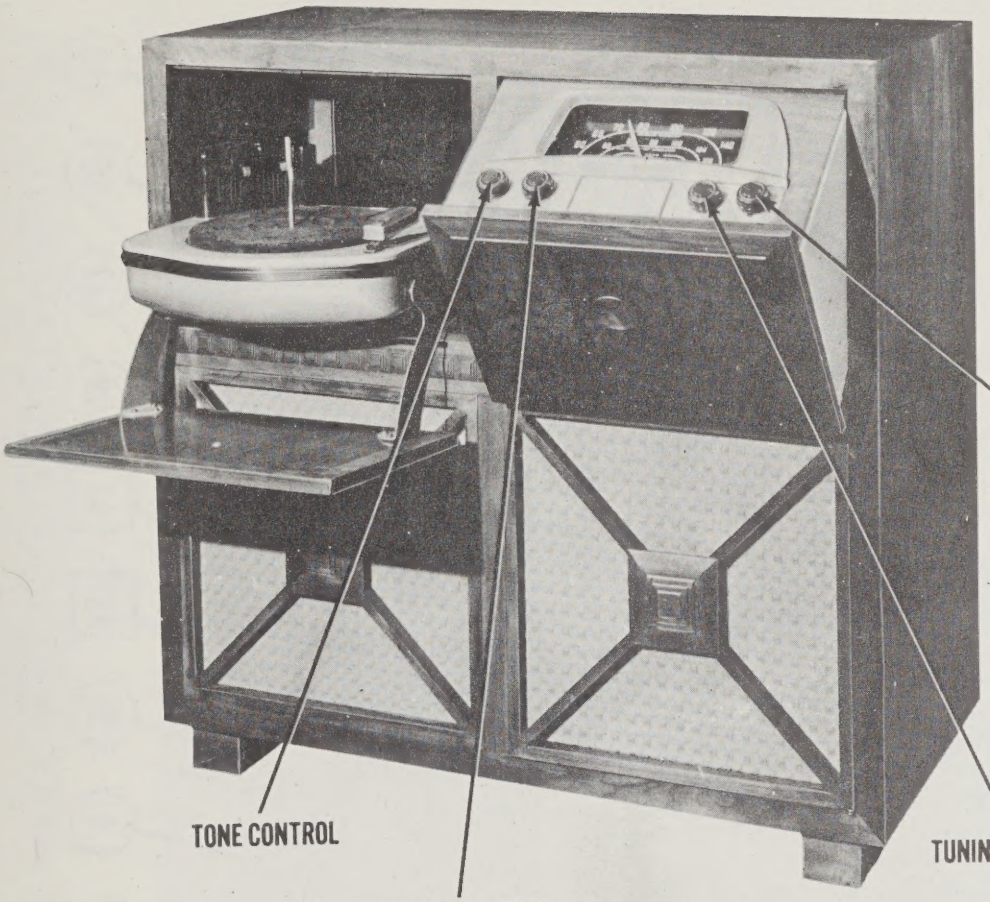
4819-1

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

ADMIRAL CHASSIS
MODEL 9B1



ADMIRAL CHASSIS
MODEL 9B1

ADMIRAL MODEL 9B14

TRADE NAME	Admiral, Models 9B14, 9B15, 9B16 (Ch. 9B1)
MANUFACTURER	Admiral Radio Corp., 3800 W. Cortland St., Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (NINE)	Types, 6BA6 FM RF Amp., 6BA6 FM-AM RF Amp., 6SB7Y Converter, 6BA6 AM-FM 1st IF Amp., 6BA6 AM Det.-AVC - FM 2nd IF, 6AL5 Ratio Det., 6SQ7 AF Amp., 6V6GT Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.75 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1620KC FREQ. MOD. 88-109MC

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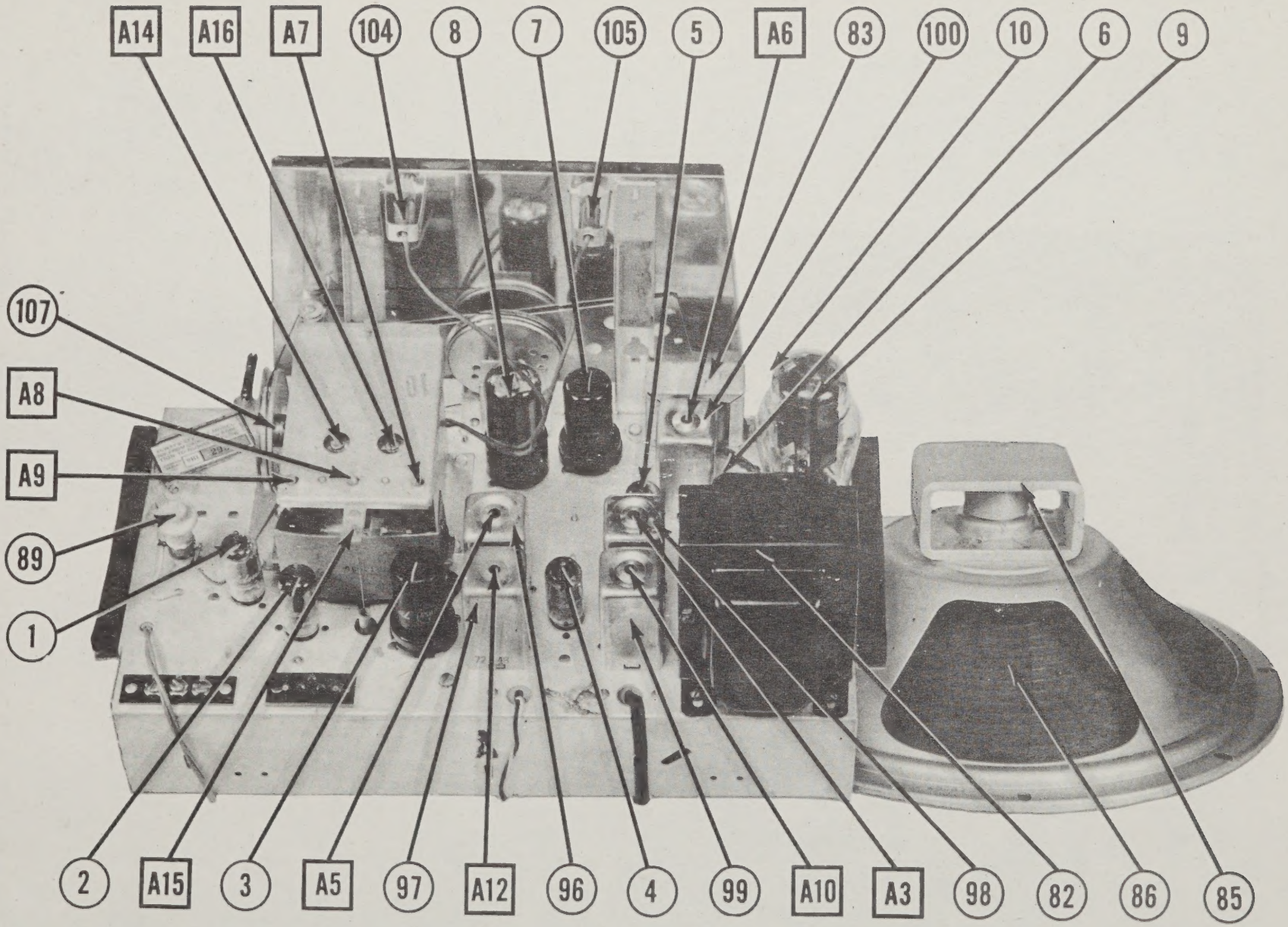
A14
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A7
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A6
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A8
A9
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A10
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.	6BA6	6BA6	7BK	
2	FM AM RF Amp.	6BA6	6BA6	7BK	
3	Converter	6SB7Y	6SB7Y	8R	
4	AM-FM 1st IF	6BA6	6BA6	7BK	
5	AM Det.-AVC-FM 2nd IF	6BA6	6BA6	7BK	
6	Ratio Det.	6AL5	6AL5	6BT	
7	AF Amp.	6BQ7	6BQ7	8Q	
8	Power Output	6V6GT	6V6GT	7AC	
9	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
10A	30	350	67C7-10	AF862J4A	UP43145C	DY-403	EL-424	▲ Filter
B	30	350						■ "
C	10	350						▲ Osc. Decoupling
D	20	25						Cath. Bypass
11	4	150	67A4-2	PR8150/4	BR415	M-4-450	UT-41	Stabalizing Cap.
12	.005	600	64B1-12	684-005	DT6D5	ST-6-005	TC-25	Output Plate Bypass
13	.005	600	64B1-12	684-005	DT6D5	ST-6-005	TC-25	Audio Coupling
14	.01	400	64B1-25	484-01	DT4S1	ST-4-01	TC-11	" "
15	.1	400	64B1-20	484-1	DT4P1	ST-4-1	TC-1	AF Plate Decoup.
16	.005	600	64B1-12	684-005	DT6D5	ST-6-005	TC-25	Tone Comp.
17	.01	400	64B1-25	484-01	DT4S1	ST-4-01	TC-11	" "
18	.005	600	64B1-12	684-005	DT6D5	ST-6-005	TC-25	Audio Coupling
19	.2	200	64B1-29	484-.2	DT4P2	ST-4-2	TC-2	Phono Bias Filter
20	.002	600	64B1-14	684-002	DT6D2	ST-6-002	TC-22	De-emphasis
21	.05	200		484-05	DT2S5	ST-4-05	TC-15	AVC Filter
22	.1	400	64B1-20	484-.1	DT4P1	ST-4-1	TC-1	RF Bypass Pwr. Supply
23	.1	400	64B1-20	484-.1	DT4P1	ST-4-1	TC-1	2nd RF Plate Decoup.
24	50	300	65B6-4	1468-00005	5W5Q5	MO.5-45	1FM-45	AF Plate Bypass-Cer.
25	1000	300	65B6-41	1467-001	1W5D1	MW.5-21	1FM-21	Phono Coupling "
26	100	300	65B6-7	1469-0001	5R5T1	MOS.5-31	MS-31	Diode Load Cap. "-Note 1
27	100	300	65B6-7	1469-0001	5R5T1	MOS.5-31	MS-31	" " " "
28	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	2nd IF Plate Decoup.-Cer.
29	1000	300	65B6-41	1467-001	1W5D1	MW.5-21	1FM-21	2nd IF Screen Byp.-Cer.
30	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	2nd IF Decoup.-Cer. Note 2
31	100	300	65B6-3	1468-0001	5W5T1	MO.5-31	1FM-31	Diode Filter-Cer.
32	100	300	65B6-3	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
33	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	RF Byp. PowerSupply-Cer.
34	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	1st IF Scr. Byp.-Cer.
35	1000	300	65B6-41	1467-001	1W5D1	MW.5-21	1FM-21	AVC Filter-Cer.
36	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	Fil. Byp.-Cer.
37	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	Conv. PlateDecoup.-Cer.
38	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	Osc. Decoupling-Cer.
39	50	300	65B6-4	1469-00005	5R5Q5	MOS.5-45	MS-45	Osc. Grid Cap.-Cer.
40	45	300	65B6-32					Osc. Feedback-Cer.-Note 3
41	180	500	65B1-29					" " -± 3%
42	50	300	65B6-4	1468-00005	5W5Q5	MO:5-45	1FM-45	RF Coupling-Cer.
43	955	500	65B1-51					Fixed Trimmer ± 3%
44	5000	300	65A10-1	1467-005	1D5D5	MW.5-25	1FM-25	2nd RF Screen Byp.-Cer.
45	17	300	65B6-42					Fixed Trimmer-Cer.-Note 4
46	50	300	65B6-4	1468-00005	5W5Q5	MO.5-45	1FM-45	RF Coupling-Cer.
47	22	300	65B6-30					Fixed Trimmer-Cer.-Note 4
48	1000	300	65B6-41	1467-001	1W5D1	MW.5-21	1FM-21	1st RF Decoup.-" "
49	1000	300	65B6-41	1467-001	1W5D1	MW.5-21	1FM-21	FM RF Coupling-Cer.

Note 1-When either Items #26 or 27 are replaced, replace both with capacitors of equal value.
Note 2-Used in earlier models where 6AU6 is used for FM 2nd IF.
Note 3- ± 2% - .00015 Temp. Coeff.
Note 4- ± 2% - Zero Temp. Coeff.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
84	4500Ω	4.1Ω	275Ω	.4Ω	79A9	A-3825†	T22S58†	A-2902†	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
85	FIELD	VC IMP.	78B36	ST-101‡ Mod. P12-T	12A4‡	‡Replace output transformer to match 6-8Ω voice coil.
	PM	4.1Ω				
86	CONE DIA.	VC DIA.				
	11½"	1"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: MEISSNER PART No.
87	Loop Ant.		.2Ω	95A18-2	
88	Dipole Ant. FM			AB128	
89	Loop Loading Coil		2Ω	69A45	
90	FM Coupling Coil		0Ω	AB103-33	
91	1st RF Coil FM	0Ω	0Ω	69A46	
92	RF Coil-AM		2.5Ω	A1475	
93	2nd RF Coil FM	0Ω	0Ω	69A47	
94	Osc. Coil-AM	0Ω	6Ω	69A42	14-1060
95	" " FM		0Ω	69A48	
96	1st IF AM	12.5Ω	12.5Ω	72B48	
97	1st IF FM	1.7Ω	0Ω	72B37	
98	2nd IF AM	11.5Ω	11.5Ω	72B49	
99	2nd IF FM	2.2Ω	0Ω	72B38	
100	FM Det. Trans.	2.2Ω	0Ω	72B39	
101	Cath. Choke		.8Ω	AB103-35	
102	Osc. Plate Choke		0Ω	73A1	
103	Fil. Choke		0Ω	73A1	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
104	Bayonet	6-8	0.15	Brown	81A1-8		Type #47
105	"	6-8	0.15	"	81A1-8		" "

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
106	Switch	77B14	AM-FM-Phono
107	2 Gang Var. Cap	68B17	(33-425MMF, 21-147MMF)
	Dial Scale	A1506	
	Dial Pointer	A1487	
	Knob	33A13-4	

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	
50A	1 Meg.	½	75B2-9	D19-137X	AT-112	Volume Control tapped @ 500KΩ
B	Shaft		Not Req.	E	KSS-3	Attach to 50A per instructions
C	Switch		" "	41	SW-A	" " " "
51A	2 Meg.	½	75B1-23	D13-139	AM-83-S	Tone Control
B	Shaft		Not Req.	E	KSS-3	Attach to 51A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ADMIRAL PART No.	IRC PART No.	
52	100Ω	½	60B8-101		Br.-Blk.-Br. 1st RF Cathode
53	10Ω	½	60B27-100		Br.-Blk.-Blk. Parasitic Suppressor
54	6800Ω	2	60B21-682	BT-2-6800	Blue-Gray-Red 1st RF Decoupling
55	470KΩ	½	60B3-474	BTS-470K	Yl.-Vi.-Yl. 2nd RF Grid
56	27KΩ	1	60B14-273	BTA-27K	Red-Vi.-Or. 2nd RF Screen
57	2200Ω	½	60B3-222	BTS-2200	Red-Red-Red 2nd RF Plate Decoup.
58	2.2 Meg.	½	60B27-225	BTS-2.2 Meg.	Red-Red-Grn. Bleeder
59	56KΩ	½	60B2-563	BTS-56K	Grn.-Blue-Or. Conv. Grid
60	22KΩ	½	60B3-223	BTS-22K	Red-Red-Or. Osc. Grid
61	15KΩ	2	60B21-153	BT-2-15K	Br.-Grn.-Or. Conv. Screen Decoup.
62	470KΩ	½	60B3-474	BTS-470K	Yl.-Vi.-Yl. AVC Network
63	27KΩ	1	60B14-273	BTA-27K	Red-Vi.-Or. 1st IF Screen
64	470KΩ	½	60B3-474	BTS-470K	Yl.-Vi.-Yl. AVC Network
65	220KΩ	½	60B3-224	BTS-220K	Red-Red-Yl.-Diode Filter
66	100KΩ	½	60B2-104	BTS-100K	Br.-Blk.-Yl. Diode Load
67	27KΩ	1	60B14-273	BTA-27K	Red-Vi.-Or. 2nd IF Screen
68	2200Ω	½	60B3-222	BTS-2200	Red-Red-Red 2nd IF Plate Decoup.
69	390Ω	½	60B2-391		Or.-White-Br. RF Filter
70	27KΩ	½	60B3-273	BTS-27K	Red-Vi.-Or. De-emphasis
71	6800Ω	½	60B1-682	BTS-6800	Blue-Gray-Red Ratio Det. Diode Load
72	6800Ω	½	60B1-682	BTS-6800	Blue-Gray-Red " " " "
73	120KΩ	½	60B2-124	BTS-120K	Br.-Red-Yl. Phono Volt. Dropping
74	100KΩ	½	60B2-104	BTS-100K	Br.-Blk.-Yl. " " "
75	47KΩ	½	60B3-473	BTS-47K	Yl.-Vi.-Or. Tone Comp.
76	4.7 Meg.	½	60B3-475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
77	470KΩ	½	60B3-474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
78	47KΩ	½	60B3-473	BTS-47K	Yl.-Vi.-Or. AF Plate Decoup.
79	470KΩ	½	60B3-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
80	390Ω	1	60B14-391	BW-1-390	Or.-White-Br. Output Cathode
81	6800Ω	2	60B21-682	BT-2-6800	Blue-Gray-Red 2nd IF Decoup.-See Note 5

Note 5-Used on earlier models which use a 6AU6 for FM 2nd IF.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	ADMIRAL PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
82	117V AC @ .75A	530V CT .125A DC	5.3V AC @ 3.0A	6.7V AC @ 2.8A	80B9		T22R05	P-3152#

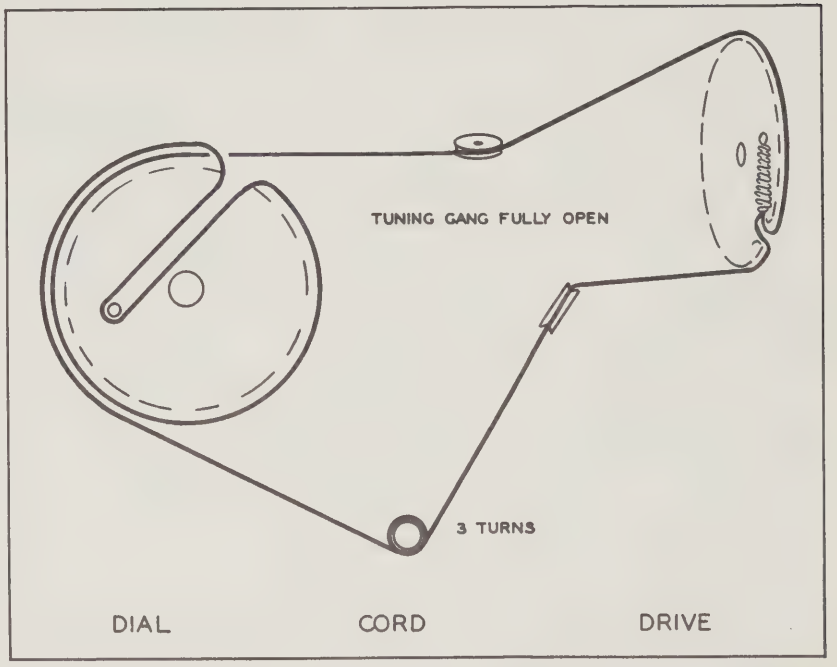
#Drill new mounting holes and add series resistor to reduce plate voltage.

FILTER CHOKE

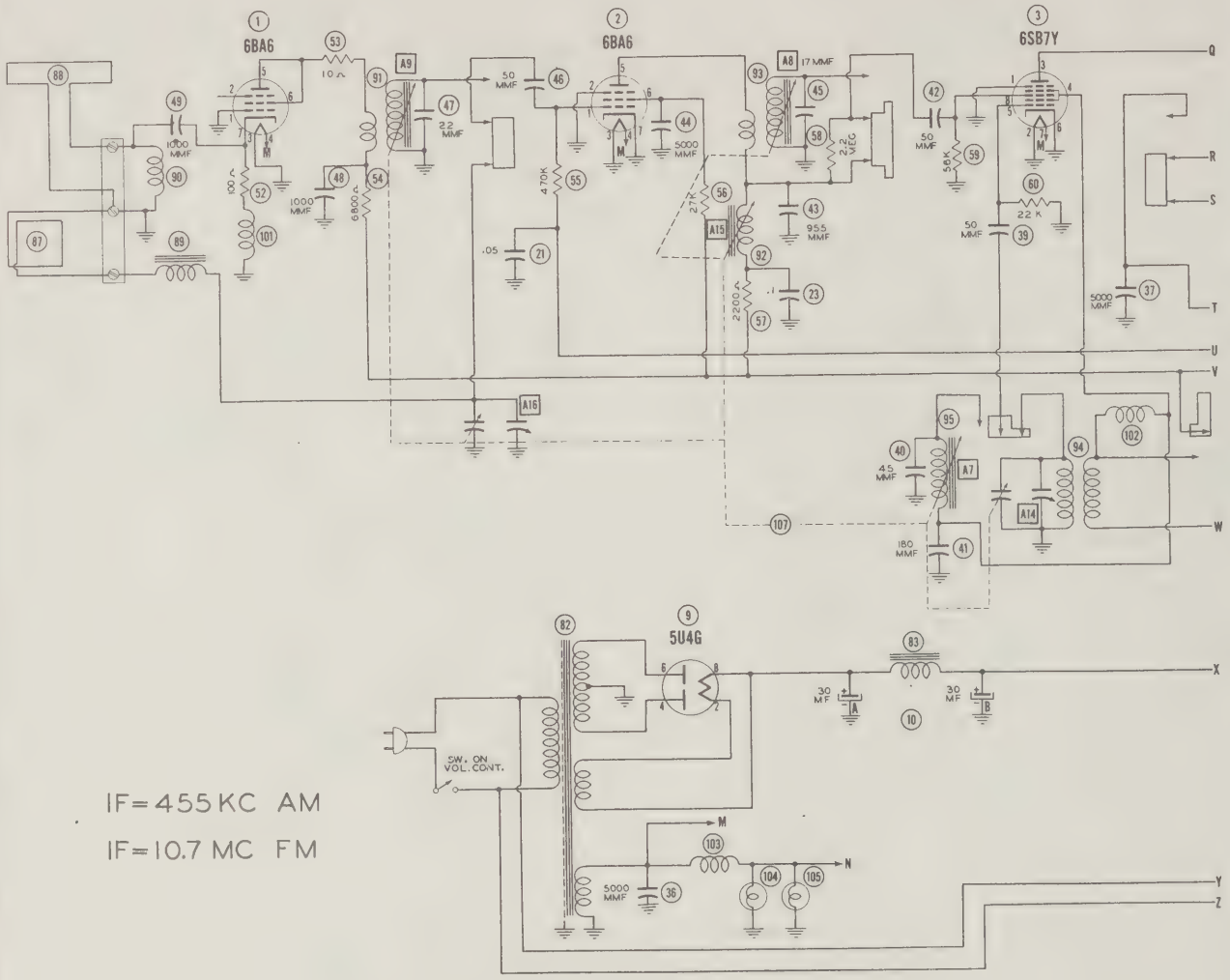
ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (@ CURRENT 1000~)	ADMIRAL PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
83	.125A	131Ω	4.5 Henries	74A13		T20C53		

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove FM and AM antenna leads from terminal strip on rear of chassis.
3. Unsolder speaker leads from speaker.
4. Disconnect phono-pickup and phono-motor plugs.
5. Remove screw and washer from both tilt-out spring studs on each side of tilt-out assembly.
6. Slip tilt-out springs off their respective studs.
7. Remove four screws holding tie-bar to tilt-out arms. Tie bar then hangs free on copper braid used to bond it to chassis.
8. Stand at end of cabinet (next to radio compartment) and hold the tilt-out door open slightly with the left hand. Use screwdriver to pry both tilt-out arms off their respecitive studs. Then push tilt-out arms toward front of cabinet. Tilt-out assembly can then be removed by tipping it straight out.
9. Remove four machine screws holding chassis in drawer.
10. Remove chassis from drawer.
11. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.



DATE 11/48-#4819-2 SET #49-FOLDER #2



IF = 455 KC AM

IF = 10.7 MC FM

STAGE GAIN MEASUREMENTS		
RF GRID TO CONVERTER GRID	12X	600KC
CONVERSION GAIN	60X	IN 600KC OUT 455KC
INPUT IF TRANSFORMER	.6X	455KC
IF TUBE	180X	455KC
OUTPUT IF TRANSFORMER	.8X	455KC
AUDIO	35X	400 ∿
OUTPUT	15X	400 ∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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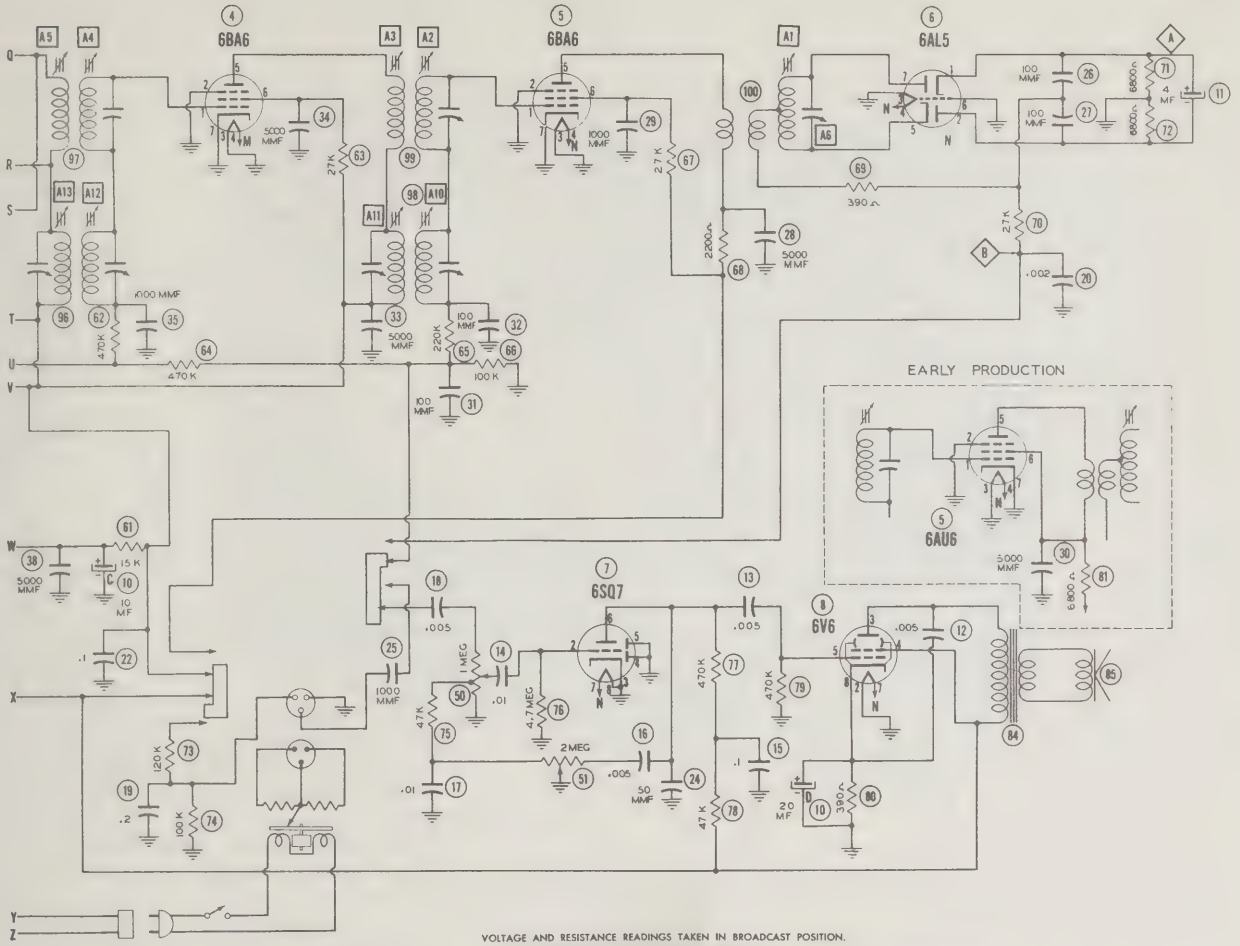

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
RADIO-PHONO SWITCH IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	6BA6	0V.	0V.	6.7VAC	0V.	140VDC	140VDC	1.9VDC	-
2	6BA6	-.1VDC	0V.	0V.	6.7VAC	240VDC	105VDC	0V.	-
3	6SB7-Y	0V.	6.7VAC	260VAC	100VDC	-5VDC§	0V.	0V.	-.2VDC
4	6BA6	-.1VDC	0V.	0V.	6.7VAC	260VDC	105VDC	0V.	-
5A	6BA6	-.4VDC	0V.	0V.	6.7VAC	-.2VDC	-.2VDC	0V.	-
‡ 5B	6BA6	-.4VDC	0V.	0V.	6.7VAC	215VDC	95VDC	0V.	-
‡ 6	6AL5	.6VDC	-.6VDC	0V.	6.7VAC	0V.	0V.	0V.	-
7	6SQ7	0V.	-.4VDC	0V.	0V.	0V.	85VDC	6.7VAC	0V.
8	6V6GT	0V.	0V.	250VDC	260VDC	0V.	240VDC	6.7VAC	16VDC
9	5U4G	0V.	280VDC	0V.	265VAC	0V.	265VAC	0V.	280VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	6BA6	0Ω	INF.	.1Ω	0Ω	80KΩ	80KΩ	100Ω	-
2	6BA6	1 Meg.	0Ω	0Ω	.1Ω	72KΩ	100KΩ	0Ω	-
3	6SB7-Y	0Ω	.1Ω	70KΩ	85KΩ	22KΩ	0Ω	0Ω	56KΩ
4	6BA6	1 Meg.	0Ω	0Ω	.1Ω	70KΩ	100KΩ	0Ω	-
5A	6BA6	320KΩ	0Ω	0Ω	.1Ω	INF.	INF.	0Ω	-
‡ 5B	6BA6	320KΩ	0Ω	0Ω	.1Ω	72KΩ	100KΩ	0Ω	-
‡ 6	6AL5	6.8KΩ	6.8KΩ	0Ω	.1Ω	INF.	0Ω	INF.	-
7	6SQ7	0Ω	4.7 Meg.	0Ω	0Ω	0Ω	600KΩ	.1Ω	0Ω
8	6V6GT	0Ω	0Ω	70KΩ	70KΩ	470KΩ	750KΩ	.1Ω	390Ω
9	5U4G	INF.	70KΩ	INF.	79Ω	INF.	74Ω	INF.	70KΩ

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The FM section of this receiver should be aligned only with an AM signal generator and a vacuum tube voltmeter. Check dial cord drawing for correct positioning of pointer and drums. Check set screws that hold tuning drum to shaft to see if they are tight and that the drum has not slipped on the shaft.

With tuning control fully clockwise all FM tuning slugs should extend 3/8" out of their coil forms. The AM-RF tuning slug (A15) should extend 1" from form.

If it becomes necessary to replace an FM tuning slug proceed in the following manner: turn tuning control completely clockwise and remove old slug. Set slug adjusting screw about half way out. Place new slug 3/8" above coil form and solder in place making certain it does not slip and that the slug wire is straight. Then realign as in FM-RF Alignment below.

FM-IF & RATIO DETECTOR ALIGNMENT

Dress VTVM leads away from signal generator leads and chassis wiring.

Attenuate signal generator output to maintain peak deflection of about 1.5 volts on all adjustments with exception of Step 4.

FM antenna should be disconnected during alignment.

Speaker should be connected.

Care should be exercised in adjusting IF slugs to prevent chipping or splitting of slugs or slipping of slugs into center of coil forms. If slug should slip into center of coil form it will be necessary to remove opposite slug. Then using a thin rod and screwdriver, "jockey" dislocated slug until it reengages the threads in the coil form. If a slug should become stripped or cracked it may be removed by removing the slug opposite it and forcing it out with a thin screwdriver.

Steps 1 & 2 may be omitted if set is not badly out of alignment so signal comes thru in Step 3.

To check IF selectivity curve as required in Step 3 proceed as follows:

A. Adjust output of signal generator for exactly 1.5 volts deflection with signal generator set at 10.7MC.
B. Tune signal generator above 10.7MC until VTVM reads exactly + 1.0 volt. Note accurately frequency of signal generator.
C. Tune signal generator below 10.7MC until VTVM reads exactly + 1.0 volt. Note accurately frequency of signal generator.
D. Add signal generator frequencies of B & C and divide by 2. This is the center IF frequency to be used in Step 4.
E. Tune signal generator above and below 10.7MC and note voltage reading on VTVM at different freq. points and plot shape of selectivity curve as in Figures 5 & 6. Curves similar to Figures 1, 2 & 3 are satisfactory. If a curve such as Fig. 4 is obtained repeat Steps 1, 2 & 3

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.01 MFD.	High side to Pin 1 (grid) of 6BA6 2nd IF Tube (5). Low side to chassis.	10.7MC (Unmodulated)	FM	Tuning slugs fully out.	DC probe to Point Ⓐ. Common to chassis	A1	Connect 3300Ω carbon resistors across secondaries of FM 1st & 2nd IF Transformers (97 & 99). Adjust A1 for maximum deflection.
2	.01 MFD.	High side to Pin 1 (grid) of 6BA6 1st IF Tube (4). Low side to chassis.	"	"	"	"	A2,A3	Adjust for maximum deflection.
3	Direct	High side to Pin 1 (grid) of 6BA6 2nd RF Tube (2). Low side to chassis.	"	"	"	"	A4,A5	If insufficient signal comes thru in this step, short Pin 5 (Osc. Grid) of 6SB7Y to chassis. Adjust A4 & A5 for maximum deflection, then repeak A1 thru A5 for maximum deflection. Remove 3300Ω resistors from Step 1. Check IF selectivity curve per prealignment instructions.
4	Direct	"	IF center freq. found in preceeding step.	"	"	DC probe to Point Ⓑ. Common to chassis	A6	Adjust for zero deflection. The correct peak is between a positive and negative maximum. If this or any of the preceeding adjustments were very far off Steps 3 & 4 should be repeated. Remove short from Pin 5 of 6SB7Y.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5	250Ω carbon res.	High side to external FM ant. terminal. Low side to chassis.	109MC (Unmodulated)	FM	Tuning slugs fully out.	DC probe to Point Ⓐ. Common to chassis	A7	Adjust for maximum output.
6	"	"	104MC (Unmodulated)	"	Tune for maximum deflection.	"	A8,A9	Rock tuning cap. and adjust for maximum deflection.

AM ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

During Step 10 set chassis on table next to back of cabinet and connect loop to receiver.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7	250Ω	High side to Pin 8 (grid) of 6SB7Y. Low side to chassis.	455KC	BC	Tuning cap. fully open.	Across voice coil	A10,A11 A12,A13	Adjust for maximum output.
8	Direct	High side to loop ant. terminal. Low side to chassis.	1620KC	"	"	"	A14	" " " "
9	Direct	"	1400KC	"	Tune for maximum output.	"	A15	Adjust for maximum output.
10	10 MMFD (or wrap several turns of wire around white loop lead)	(Receiver loop must be connected)	"	"	"	"	A16	" " " "

FIG. 1

FIG. 2

FIG. 3

FIG. 4

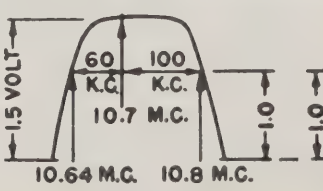


FIG. 5

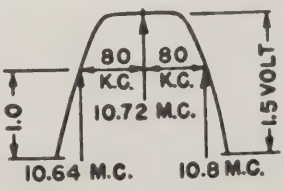
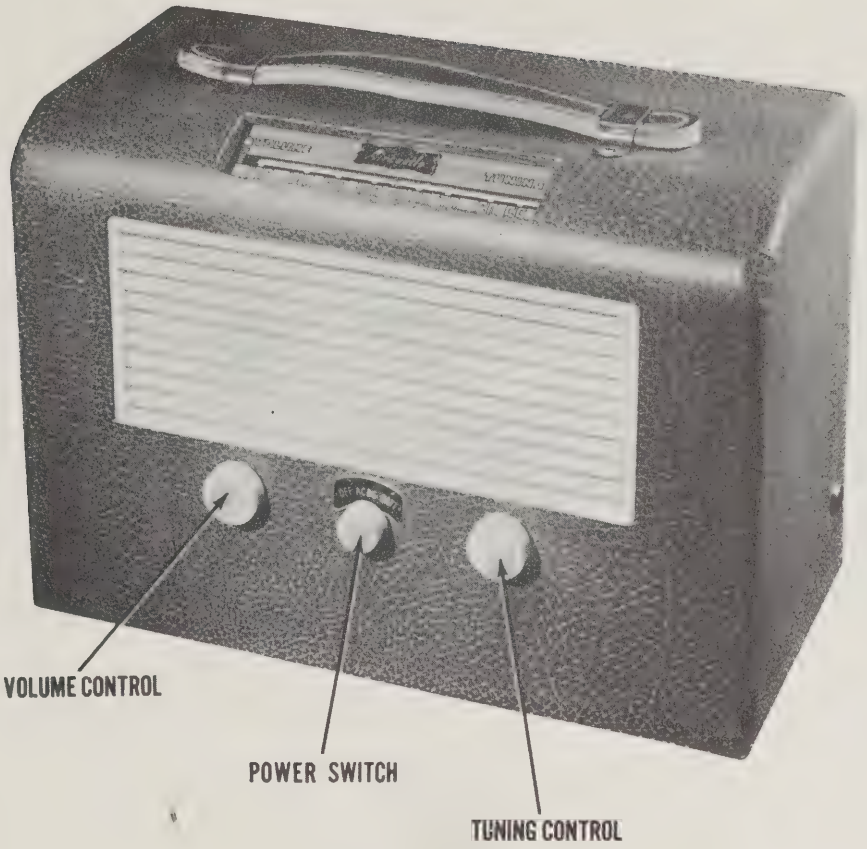


FIG. 6

TYPICAL SELECTIVITY CURVES

AIRCASTLE MODEL 5027
BATTERY-LINE OPERATED



AIRCASTLE MODEL 5027
BATTERY-LINE OPERATED

AIRCASTLE MODEL 5027

TRADE NAME	Aircastle, Model 5027
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne with Loop Antenna
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	110-125 Volts AC-DC or 9 Volts DC "A" Supply and 90 Volts DC "B" Supply
RATING	.140 Amp. @ 117 Volts AC or 52MA @ 9 Volts DC and 13MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation.
2	.1 MFD	"	1650KC	"	"	A5	Adjust for maximum output. Replace receiver in cabinet.
3		Loop	1400KC	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. A6 is accessible through a hole in top of cabinet.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	40	150	EC-4	DY-3x40-150	EL-340		UP44415	Filter
B	40	150						"
C	40	150						"
6	70	25	EC-6	M-100-25	UHC-102	PRS25-100		Filament Bypass
7	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	Line Filter
8	.005	600	PC-6	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
9	.005	600	PC-6	S-6-005	TC-25	684-005	LT6D5	Audio Coupling
10	.005	600	PC-6	S-6-005	TC-25	684-005	LT6D5	" "
11	.05	400	PC-5	S-4-05	TC-15	484-05	LT4S5	Audio Plate Decoupling
12	.1	400	PC-8	S-4-1	TC-1	484-.1	DT4P1	Filament Bypass
13	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	.1	400	PC-8	S-4-1	TC-1	484-.1	DT4P1	Line Isolation
15	.05	400	PC-5	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
16	100	500	MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	Audio Plate Bypass
17	100	500	MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	Diode Filter
18	100	500	MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.

CONTROLS

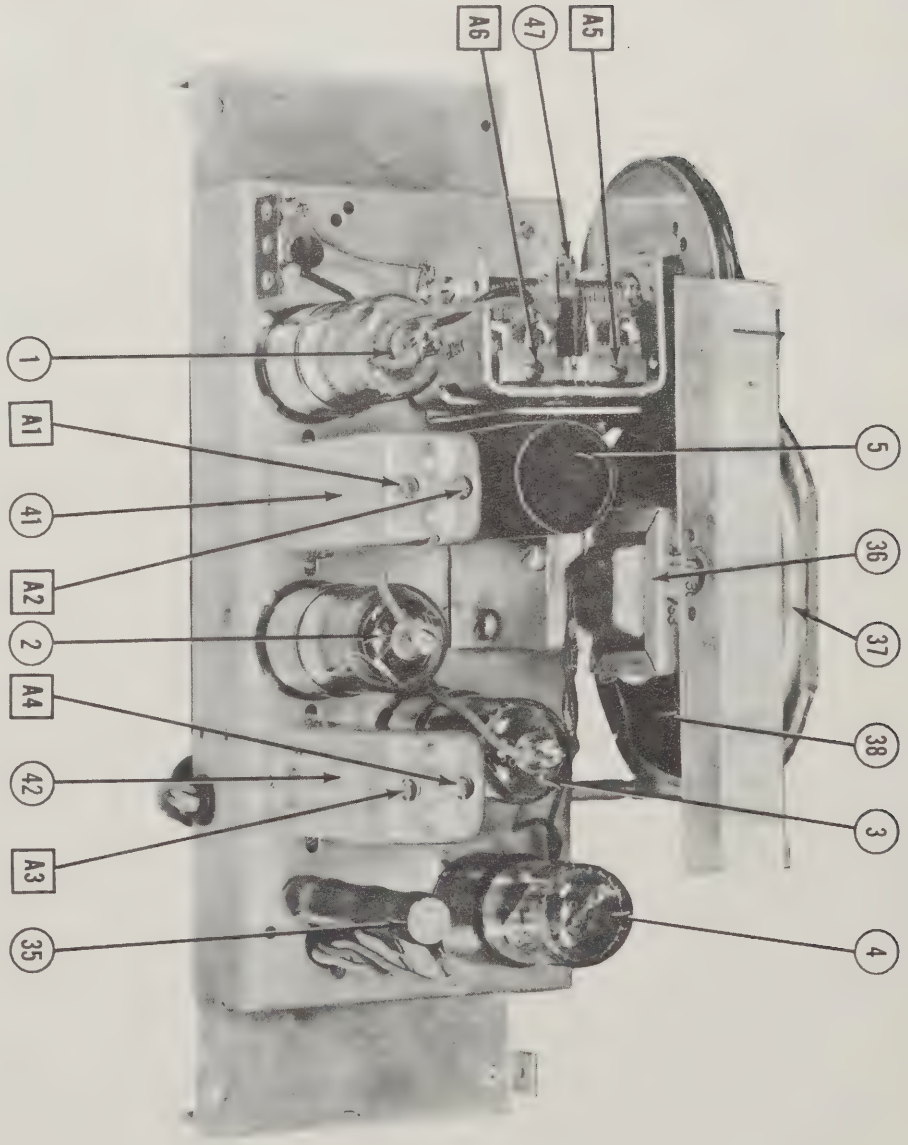
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	1 Meg.	½	VC-2	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 19A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
20	220KΩ	½	1R-20	BTS-220K	Red-Red-Yl. Oscillator Grid
21	220KΩ	½	1R-20	BTS-220K	Red-Red-Yl. Line Isolation
22	56KΩ	½	1R-10	BTS-56K	Grn.-Blue-Or. Converter Screen Dropping
23	3.3 Meg.	½	1R-23	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
24	82KΩ	½		BTS-100K	Gray-Red-Or. Diode RF Filter
25	10 Meg.	½	1R-3	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
27	470KΩ	½	1R-11	BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
28	2.2 Meg.	½	1R-13	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
29	680Ω	½	1R-32	BTS-680	Blue-Gray-Br. Filament String
30	270Ω	½	1R-33	BW-½-270	Red-Vi.-Br. Filament String
31	330Ω	½	1R-21	BW-½-330	Or.-Or.-Br. Filament String
32	620Ω	½	1R-39	BTS-680	Blue-Red-Br. Filter
33	620Ω	½	1R-39	BTS-680	Blue-Red-Br. "
34	82Ω	2	1R-35	BW-2-82	Gray-Red-Blk. Surge Limiter
35A	1050Ω		WR-3A	AB-1000	Filament Dropping
B	1050Ω			AB-1000	" "
C	40Ω			ABA-50	" " - See Note 1

Note 1 - On IRC replacement set slider at 40Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
36	6400Ω	3.1Ω	250Ω	.4Ω	Part of SPK-5	A-3878*	T22S46*	A-2931*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
37	PM	3.1Ω	SPK-5	ST-105† Mod. P5-X	5A07†	†Drill and tap magnet frame and trim flange.
	CONE DIA.	VC DIA.				
38	4-3/4"	9/16"				

R F COILS

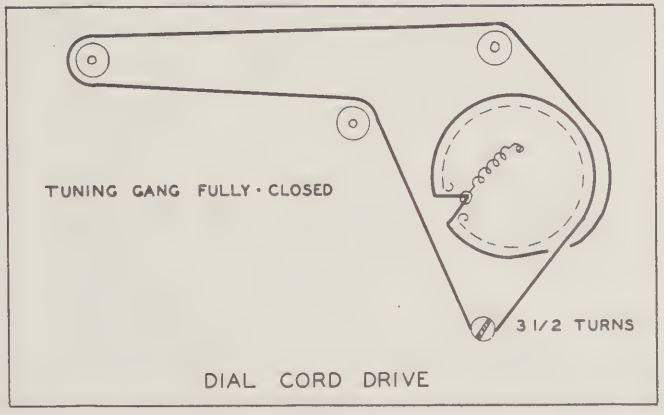
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.
39	Loop Ant.		1.5Ω	LL-10	
40	Osc. Coil	.3Ω	1Ω	LO-8	14-1040
41	Input IF	19Ω	20Ω	LI-3	16-6666
42	Output IF	19Ω	19Ω	LI-4	16-6667

BATTERIES

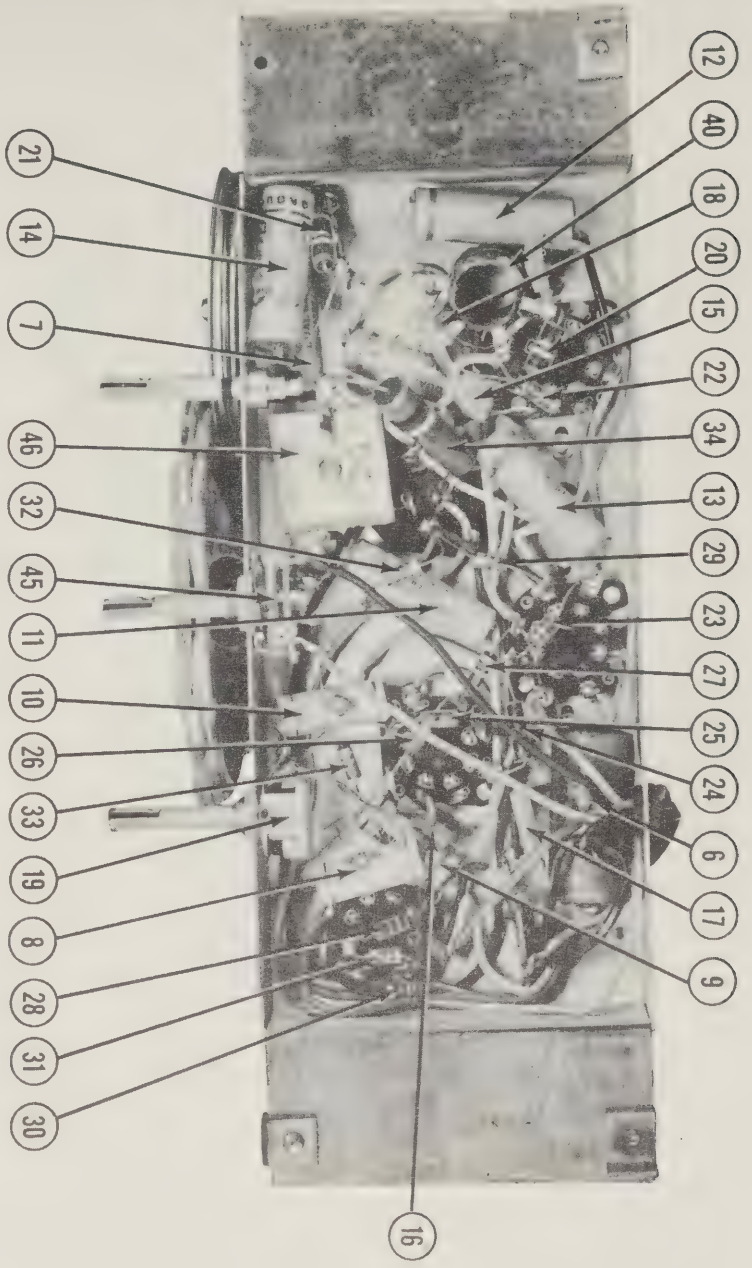
ITEM No.	VOLTAGE	AIRCASTLE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
43	9V "A"		#746			G3			2 Used in series
44	90V "B"			#482			M3(		

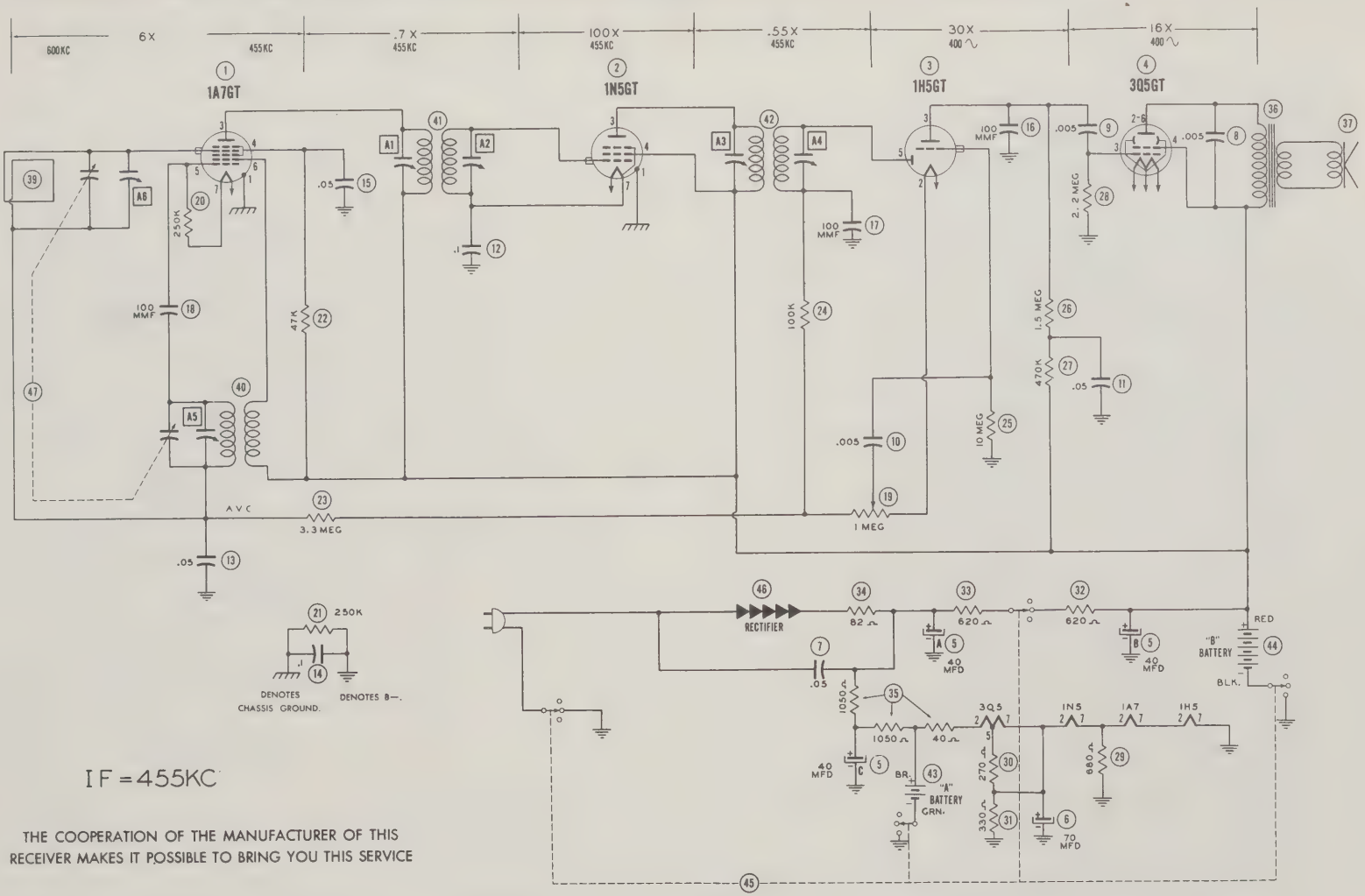
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
45	Switch	SW-5	Off-AC-DC-Batt.
46	Rectifier	SR-1	Selenium
47	2 Gang Var. Cap.	GC-4	(37-216 MMF, 37-468 MMF)
A6	Trimmer	TC-7	Ant. Adj.



CHASSIS—BOTTOM VIEW





IF = 455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	2.7VDC	90VDC	42VDC	-7.7VDC§	90VDC	1.3VDC	0V.	0V.
2	1N5GT	0V.	4VDC	90VDC	90VDC	-.2VDC	90VDC	2.7VDC	0V.	2.7VDC
3	1H5GT	0V.	1.3VDC	42VDC	0V.	-.3VDC	77VDC	0V.	-.3VDC	0V.
4	3Q5GT	0V.	6.6VDC	90VDC	95VDC	0V.	9VDC	4VDC	5.4VDC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	230KΩ	*	3.5KΩ	50KΩ	260KΩ	3.5KΩ	*	INF.	4 Meg.
2	1N5GT	230KΩ	*	3.5KΩ	3.5KΩ	1 Meg.	3.5KΩ	*	4 Meg.	40Ω
3	1H5GT	INF.	*	1.5 Meg.	10 Meg.	1.2 Meg.	560KΩ	0Ω	1.2 Meg.	10 Meg.
4	3Q5GT	0Ω	*	4KΩ	3.5KΩ	2 Meg.	85Ω	*	*	-

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4819-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made operative by shorting AVC to B- during stage gain measurements.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

AIR KING MODEL A-520
BATTERY-LINE OPERATED

AIR KING MODEL A-520
BATTERY-LINE OPERATED

AIR KING MODEL A-520

TRADE NAME	Air King, Model A-520
MANUFACTURER	Air King Products Co., Inc.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3V4 Power Output
POWER SUPPLY RATING	110-120 Volts AC/DC or 4.5 Volts "A" Supply and 67.5 Volts "B" Supply .1 Amp. @ 117 Volts AC or 100 MA @ 4.5 Volts DC and 18MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1640KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to large stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
2		Loop	1640KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 11/48-#4819-4 SET #49-FOLDER #4

PARTS LIST AND DESCRIPTIONS

AIR KING
MODEL A-520

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIR KING PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	2nd Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIR KING PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	60	100	20115					Filter-Yellow
B	60	100						" -Red
C	100	50						Filament Bypass-Green
6	.05	400		484-05	GT4S5	ST-4-05	TC-15	Line Filter
7	.005	600		684-005	GT6D5	ST-6-005	TC-25	Output Plate Bypass
8	.01	150			ZZW1S1	TST-2-01		Audio Coupling
9	.001	600		684-001	GT6D1	ST-6-001	68P26	" "
10	.01	400		484-01	GT4S1	ST-4-01	68P33	AF Screen Bypass
11	.05	200			GT2S5	TST-2-05	68P35	AVC Filter
12	.1	200			GT2P1	ST-2-1	68P36	Fil. Bypass
13	.1	200			GT2P1	ST-2-1	68P36	" "
14	150	300		1468-00015	5W5T15	MO.5-315	1FM-315	AF Plate Bypass-Cer.
15	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	Diode RF Filter "

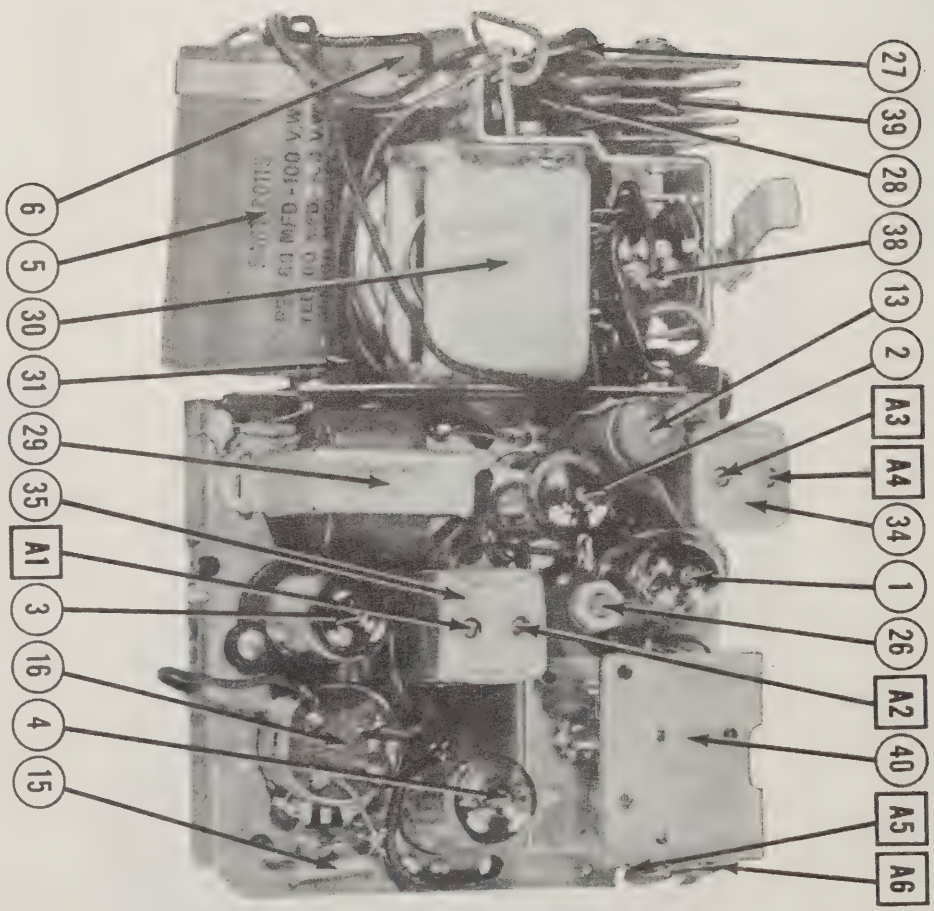
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	AIR KING PART No.	IRC PART No.	CLAROSTAT PART No.	
16	2 Meg.	½	2495			Volume Control

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIR KING PART No.	IRC PART No.	
17	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Osc. Grid
18	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. AVC Network
19	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
20	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. AF Screen
21	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
22	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. Output Grid
23	820Ω	½		BTS-820	Gray-Red-Br. Fil. String
24	270Ω	½		BW-½-270	Red-Vi.-Br. Fil. String
25	27Ω	½		BW-½-27	Red-Vi.-Blk. Fil. Dropping
26	1250Ω	10	2180	AB-1250	" "
27	330Ω	2		BW-2-330	Or.-Or.-Br. Filter
28	220Ω	2		BW-2-220	Red-Red-Br. Rect. Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIR KING PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
29	7000Ω	3.5Ω	470Ω	.5Ω	1346	A-3329#		A-2927	#Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIR KING PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
30	PM	3.5Ω	58107		3A07†	†Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
31	3-3/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIR KING PART No.	MEISSNER PART No.	
32	Loop Ant.		3.5Ω	28240		
33	Osc. Coil	2.5Ω	10.5Ω	28241		
34	Input IF	20.2Ω	20.2Ω	3379	16-6668	
35	Output IF	20.2Ω	20.1Ω	3387	16-6669	

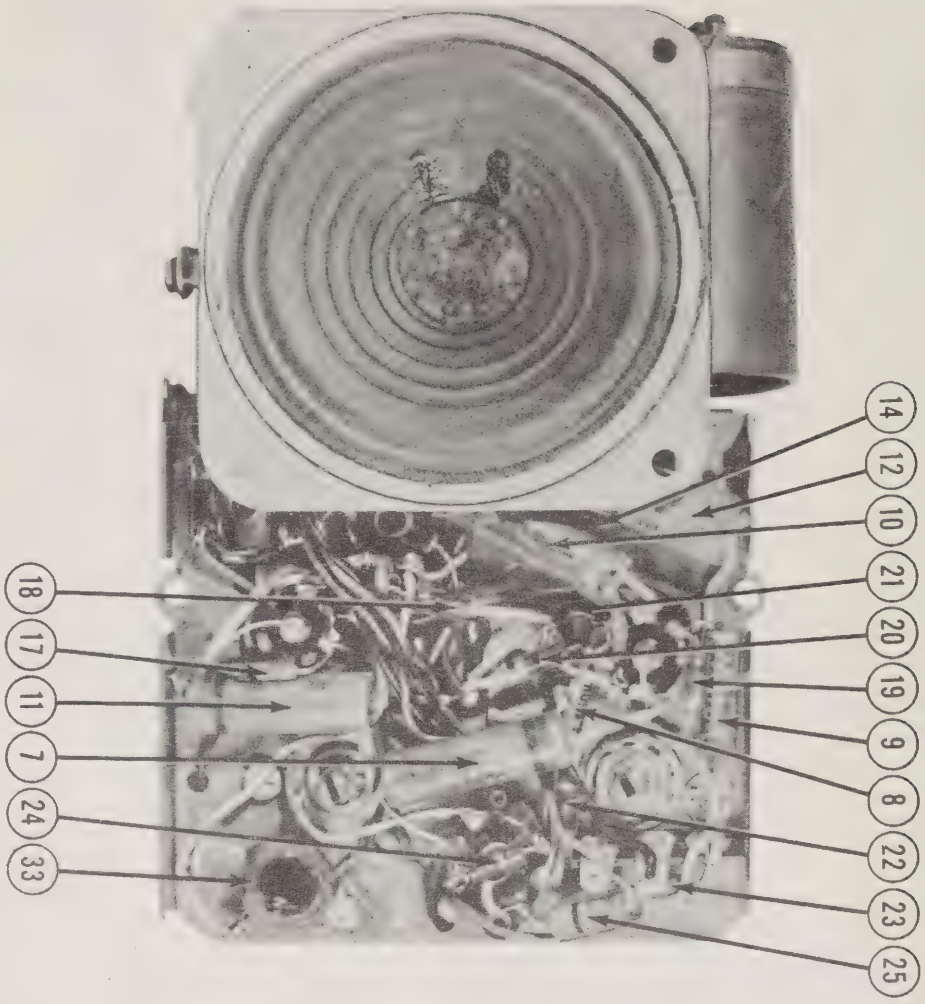
BATTERIES

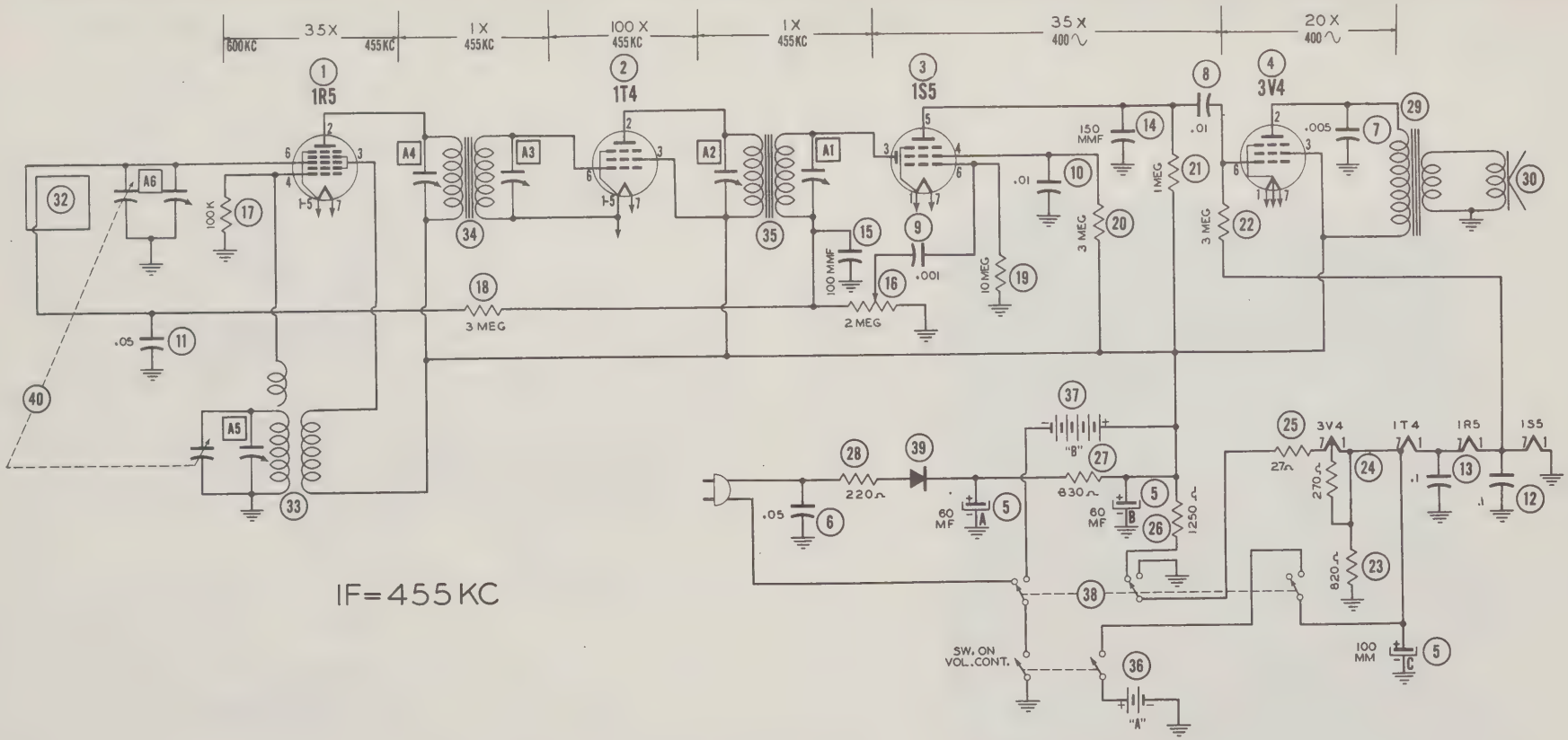
ITEM No.	VOLTAGE	AIR KING PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
36	4.5V "A"		950			2R			3 Used in series
37	67.5V "B"			467			XX45		

MISCELLANEOUS

ITEM No.	PART NAME	AIR KING PART No.	NOTES
38	Switch	3793	AC/DC-Batt.
39	Rectifier	51133	Selenium (100MA)
40	2 Gang Var. Cap.	16103	(18-345MMF, 15-142MMF)
	Cabinet	6034	(Includes Knobs)

CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	1.3VDC	65VDC	65VDC	-9.8VDC§	1.3VDC	0V.	2.7VDC
2	1T4	2.7VDC	65VDC	65VDC	0V.	2.7VDC	2.7VDC	4.0VDC
3	1S5	0V.	0V.	0V.	14VDC	9VDC	0V.	1.3VDC
4	3V4	4VDC	60VDC	65VDC	0V.	5.1VDC	0V.	6.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	1.3KΩ	1.3KΩ	100KΩ	*	5 Meg.	*
2	1T4	*	1.3KΩ	1.3KΩ	5 Meg.	*	*	*
3	1S5	0Ω	INF.	2 Meg.	3 Meg.	1 Meg.	10 Meg.	*
4	3V4	*	1.9KΩ	1.3KΩ	INF.	*	3 Meg.	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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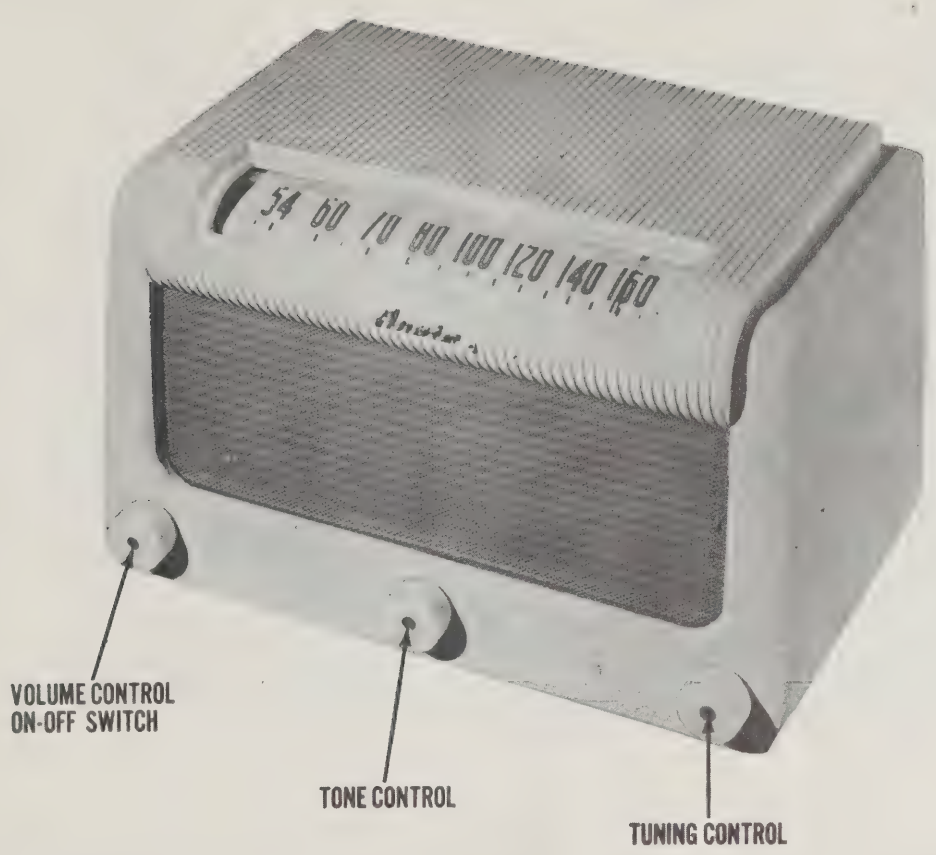
4819-4

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

ARVIN MODELS
160T, 161T (Ch. RE-232)



ARVIN MODELS
160T, 161T (Ch. RE-232)

TRADE NAME	Arvin, Models 160T, 161T (Ch. RE-232)
MANUFACTURER	Noblitt-Sparks Industries, Columbus, Indiana
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 Det.-AVC-AF, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to center stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to B-.	1620KC	"	"	A5	Adjust for maximum output.
3	200MMFD	"	1400KC	Tune for maximum output.	"	A6,A7	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	2nd Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT/G	35L6GT/G	7AC	
6	Rectifier	35Z5GT/G	35Z5GT/G	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	A21578	PRSA150/50-30	EDL5315	M-5030-150	TA-5308	Filter-Red
B	30	150						" -Blue
8	20	150		PRS150/20	BR2015	M-20-150	UT-201	" -See Note 1
9	.05	400	C20068-503	484-05	DT4S5	ST-4-05	TC-15	Line Filter
10	.1	200	C20067-104	484-.1	DT2P1	ST-4-1	72P2	Line Isolation
11	.005	600		684-005	DT6D5	ST-6-005	TC-25	Output Plate Bypass
12	.005	400	C20068-502	484-005	DT6D5	ST-6-005	TC-25	Audio Coupling
13	.01	400	C20068-103	484-01	DT4S1	ST-4-01	TC-11	" "
14	.002	600		684-002	DT6D2	ST-6-002	TC-22	Tone Compensation
15	.2	200	C20067-204	484-.2	DT4P2	ST-4-2	TC-2	RF Bypass Pwr. Supply-See Note 1
16	.05	400	C20068-503	484-05	DT4S5	ST-4-05	TC-15	AVC Filter
17	.0005	600	C20069-501	1468-0005	DT6T5	ST-6-0005	TC-35	RF Coupling
18	.001	600		684-001	DT6D1	ST-6-001	TC-21	Ext. Ant. Isolation
19	100	500	C20065-101	1468-0001	5W5T1	MO.5-31	1FM-31	Feedback-See Note 1
20	220	300	C20226-221	1468-0002	5W5T2	MO.5-32	1FM-32	Diode RF Filter-Cer.
21	200	500		1468-0002	5W5T2	MO.5-32	1FM-32	AF Grid Bypass
22	50	500	C20069-501	1468-00005	5W5Q5	MO.5-45	1FM-45	Osc. Grid Cap.-Cer.

Note 1-Not used in all models.

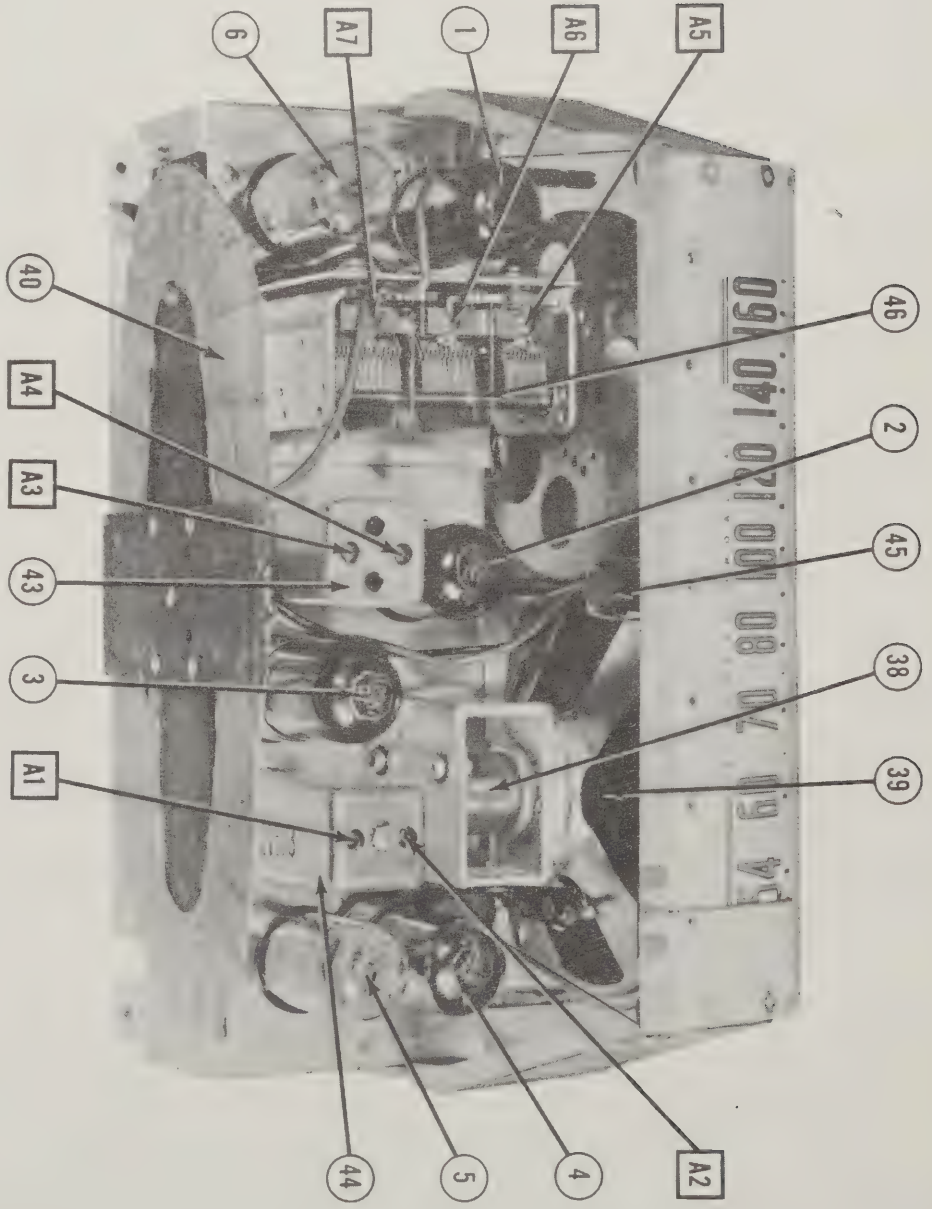
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	½	C21554	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 23A per instructions
C	Switch		" "	41	SW-A	" " " " "
24A	500KΩ	½	C21553	D13-133	AM-60-Z	Tone Control
B	Shaft		Not Req.	E	KSS-3	Attach to 24A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	IDENTIFICATION CODES
25	8200Ω	½	C20120-822	BTS-8200	Gray-Red-Red RF Plate Load
26	6800Ω	½	C20060-682	BTS-6800	Blue-Gray-Red Conv. Grid
27	22KΩ	½	C20060-223	BTS-22K	Red-Red-Or. Oscillator
28	6.8 Meg.	½	C20060-685	BTS-6.8 Meg.	Blue-Gray-Grn. AVC Network
29	1 Meg.	½	C20060-105	BTS-1 Meg.	Br.-Blk.-Grn. " "
30	3.3 Meg.	½	C20060-335	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
31	330KΩ	½	C20060-334	BTS-330K	Or.-Or.-Yl. AF Plate Load
32	150Ω	½	C20060-151	BW-½-150	Br.-Grn.-Br. Output Cathode
33	1200Ω	2	C20223-122	BT-2-1200	Br.-Red-Red Filter
34	15Ω	½	C20060-150	BW-½-15	Br.-Grn.-Blk. Rect. Ballast
35	150Ω	½	C20060-151	BW-½-150	Br.-Grn.-Br. Dial Light Shunt
36	330KΩ	½	C20060-334	BTS-330K	Or.-Or.-Yl. Line Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ARVIN PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
37	2150Ω	3.0Ω	106Ω tapped @ 5.2Ω	.3Ω	AC21577-1	A-3330		A-3031	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ARVIN PART No.	JENSEN PART No.	QUAM PART No.	
38	FIELD	VC IMP.	AC21572-1	ST-107 Mod. P5-V		
	PM	3.6Ω				
39	CONE DIA.	VC DIA.				
	5-1/8"	9/16"				

R F COILS

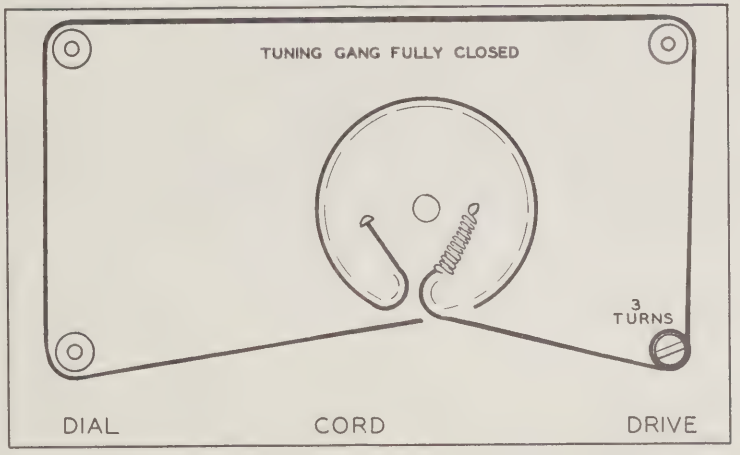
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ARVIN PART No.	MEISSNER PART No.	
40	Loop Ant.	0Ω	.6Ω	AD21574-1		
41	RF Coil		6.8Ω	AC21575-1		
42	Osc. Coil	.9Ω	5.8Ω	AC21576-1	14-1060	
43	Input IF	13.5Ω	14Ω	AC21572-1	16-6666	
44	Output IF	10Ω		AC21573-1		

DIAL LIGHT

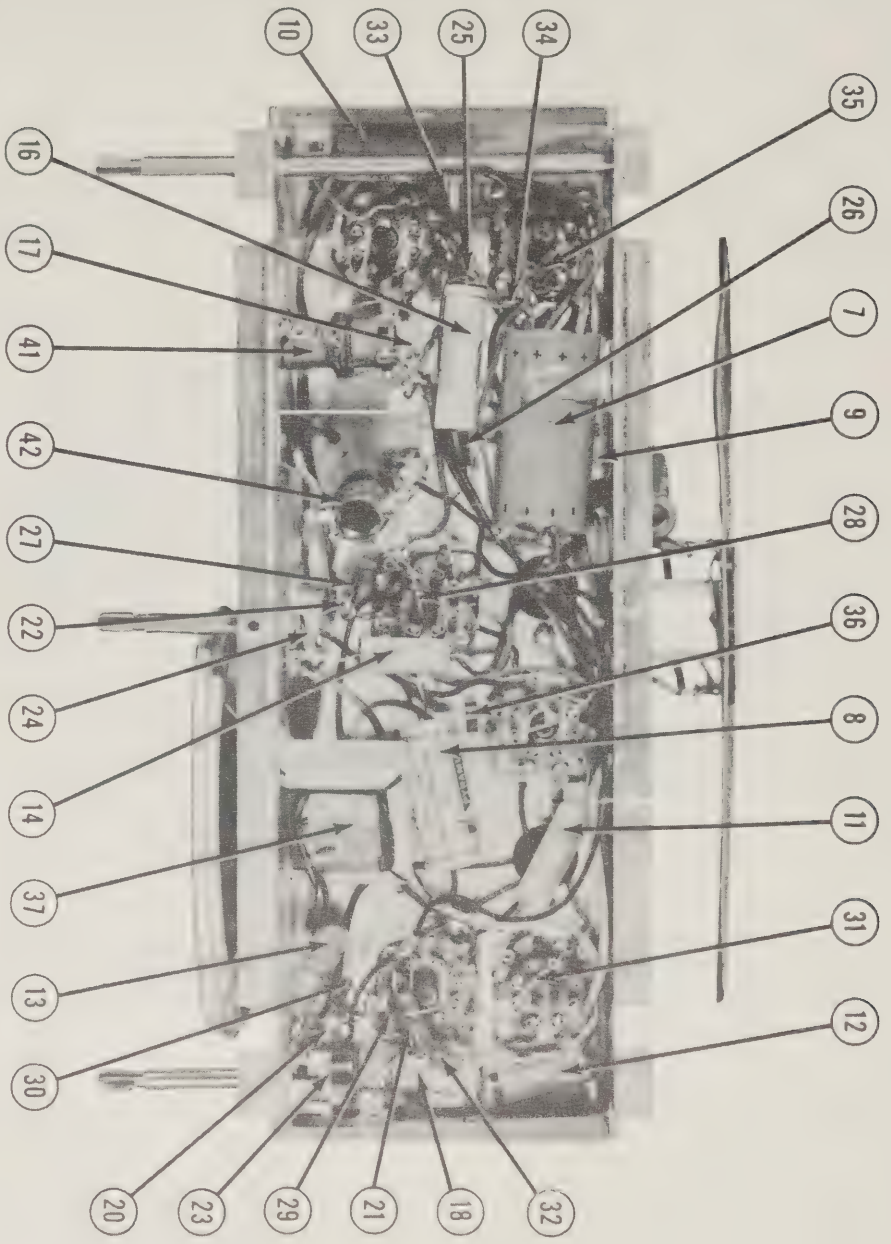
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ARVIN PART No.		
45	Bayonet	6-8	0.15	Brown	A19351		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
46	3 Gang Var. Cap.	AD21569-1	29-498MMF, 29-399MMF, 33-192MMF)
	Cabinet	E21536-1	(160T) Walnut
	"	E21536-2	(161T) Ivory
	Dial Crystal	C21559	
	Dial Pointer	C21564	

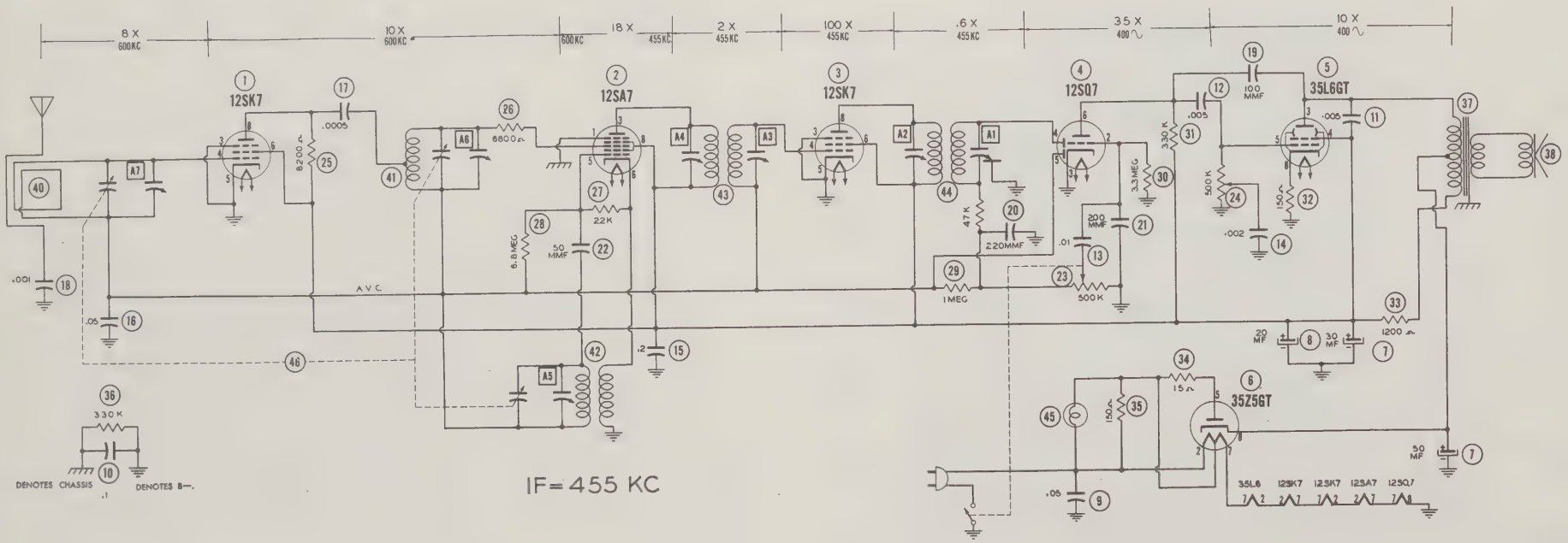


CHASSIS—BOTTOM VIEW



ARVIN MODELS 160T, 161T

ARVIN MODELS 160T, 161T



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	50VAC	0V.	-.5VDC	0V.	80VDC	38VAC	23VDC
2	12SA7GT	0V.	26VAC	80VDC	80VDC	-12VDC§	0V.	12VAC	-.5VDC
3	12SK7GT	0V.	26VAC	0V.	-.5VDC	0V.	80VDC	38VAC	80VDC
4	12SQ7GT	0V.	-.7VDC	0V.	-.3VDC	-.6VDC	43VDC	12VAC	0V.
5	35L6GT	0V.	50VAC	115VDC	80VDC	0V.	0V.	85VAC	5VDC
6	35Z5GT	0V.	117VAC	111VAC	0V.	110VAC	117VDC	85VAC	117VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	380KΩ	46Ω	0Ω	1.5 Meg.	0Ω	50KΩ	36Ω	60KΩ
2	12SA7GT	380KΩ	24Ω	50KΩ	50KΩ	22KΩ	.9Ω	12Ω	1.5 Meg.
3	12SK7GT	380KΩ	24Ω	0Ω	1.5 Meg.	0Ω	50KΩ	36Ω	50KΩ
4	12SQ7GT	380KΩ	3.5 Meg.	0Ω	560KΩ	1.5 Meg.	380KΩ	12Ω	0Ω
5	35L6GT	INF.	46Ω	50KΩ	50KΩ	500KΩ	INF.	80Ω	150Ω
6	35Z5GT	INF.	110Ω	108Ω	INF.	120Ω	50KΩ	80Ω	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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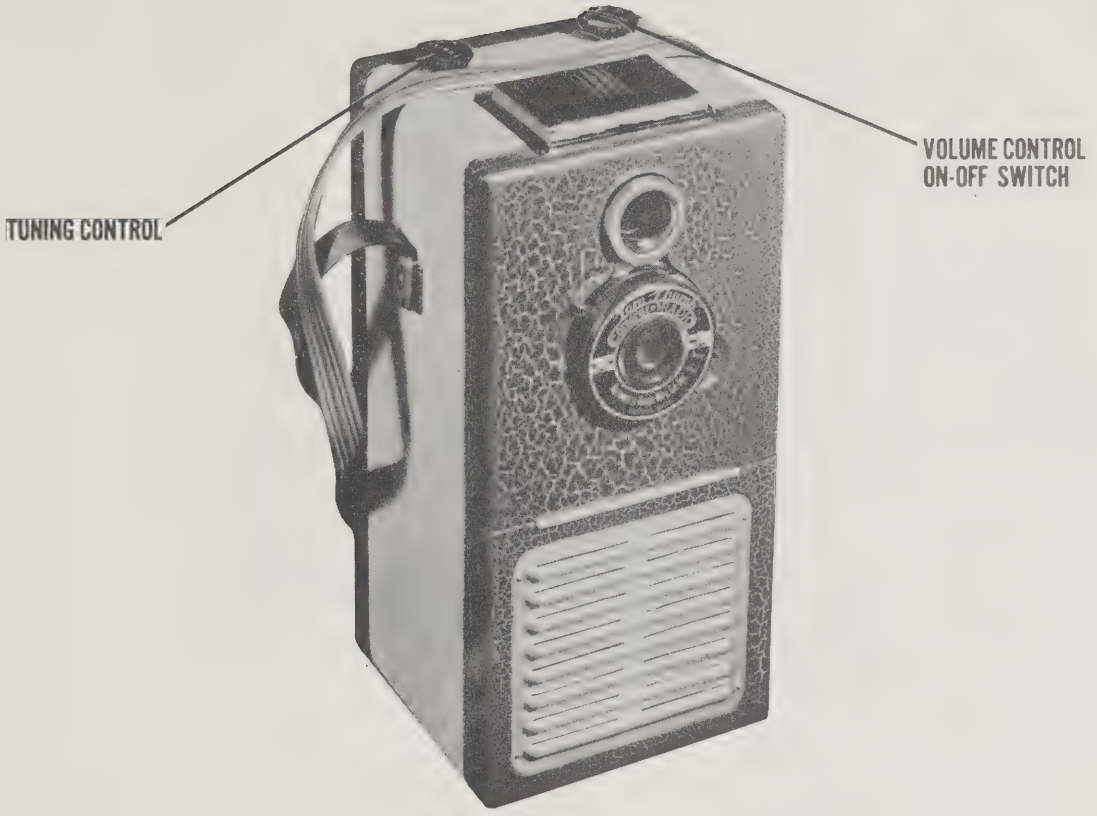
4819-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AUTOMATIC MODEL TOM THUMB CAMERA-RADIO BATTERY OPERATED

AUTOMATIC MODEL TOM THUMB CAMERA-RADIO BATTERY OPERATED



AUTOMATIC MODEL TOM THUMB CAMERA-RADIO BATTERY OPERATED

AUTOMATIC MODEL TOM THUMB CAMERA-RADIO

TRADE NAME	Automatic, Model Tom Thumb Camera-Radio
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston, Mass.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Built in Camera
TUBES (FOUR)	Types, 1R5 Converter, 1L4 or 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output
POWER SUPPLY	1.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	268MA @ 1.5 Volts DC and 11MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) of 1R5. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 11/48-#4819-6 SET #49-FOLDER #6

PARTS LIST AND DESCRIPTIONS

AUTOMATIC MODEL TOM THUMB CAMERA-RADIO

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2A	IF Amp.	1L4	1L4	6AR	
B	" "	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	8	90		PRS150-8	BR8I5	M-8-150	UT-81	Power Supply Bypass
6	.002	400		484-002	DT6D2	ST-6-002	TC-22	Output Plate Bypass
7	.002	400		484-002	DT6D2	ST-6-002	TC-22	Audio Coupling
8	.05	200			DT2S5			AF Screen Bypass
9	.002	400		484-002	DT6D2	ST-6-002	TC-22	Audio Coupling
10	.05	200			DT2S5			Decoupling
11	.05	200			DT2S5			AVC Filter
12	100	300		1468-0001	5W5T1	M0.5-31	1FM-31	AF Plate Bypass-Cer.
13	100	300		1468-0001	5W T1	M0.5-31	1FM-31	Diode RF Filter- "
14	100	300		1468-0001	5W5T1	M0.5-31	1FM-31	Osc. Grid Cap. - "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
15A	1 Meg.	½	RV-53	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch		" "	42	SW-A2	" " " " "

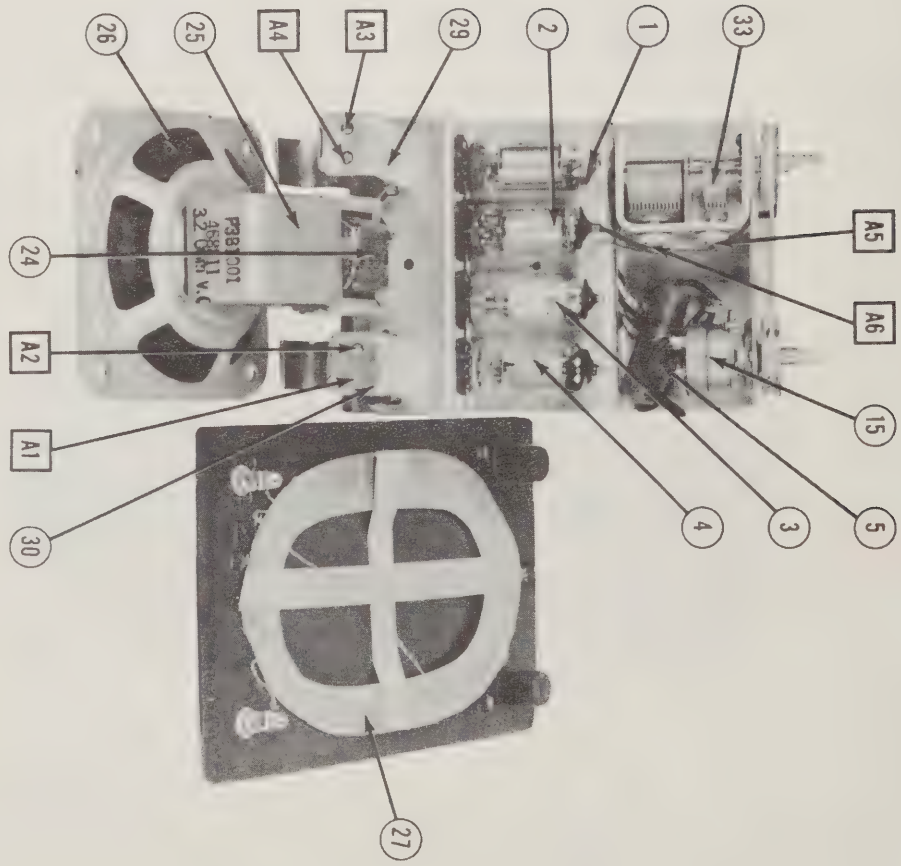
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
16	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Osc. Grid
17	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. AVC Network
18	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
19♦	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Screen
20	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
21	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. Output Grid
22	820Ω	½		BTS-820	Gray-Red Br. Bias
23	7500Ω	½		BTS-8200	Vi.-Grn.-Red Screen Decoupling

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
24	5500Ω	3.5Ω	310Ω	.55Ω	Part of PM-804				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AUTOMATIC PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
25	FIELD PM	VC IMP. 3.5Ω	PM-804		3A07	
26	CONE DIA. 3-3/8"	VC DIA. 9/16"				

R F COILS

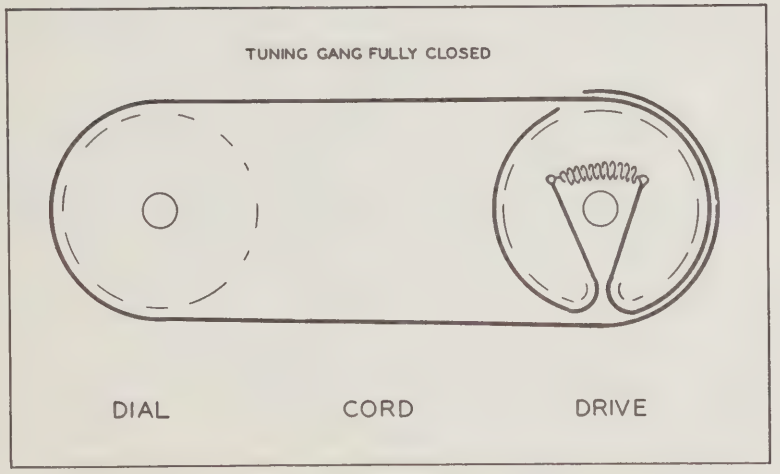
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AUTOMATIC PART No.	MEISSNER PART No.	
27	Loop Ant.		3Ω			
28	Osc. Coil	2.7Ω	9.8Ω			
29	Input IF	26Ω	26Ω		16-6668	
30	Output IF	22Ω	16Ω		16-6669	

BATTERIES

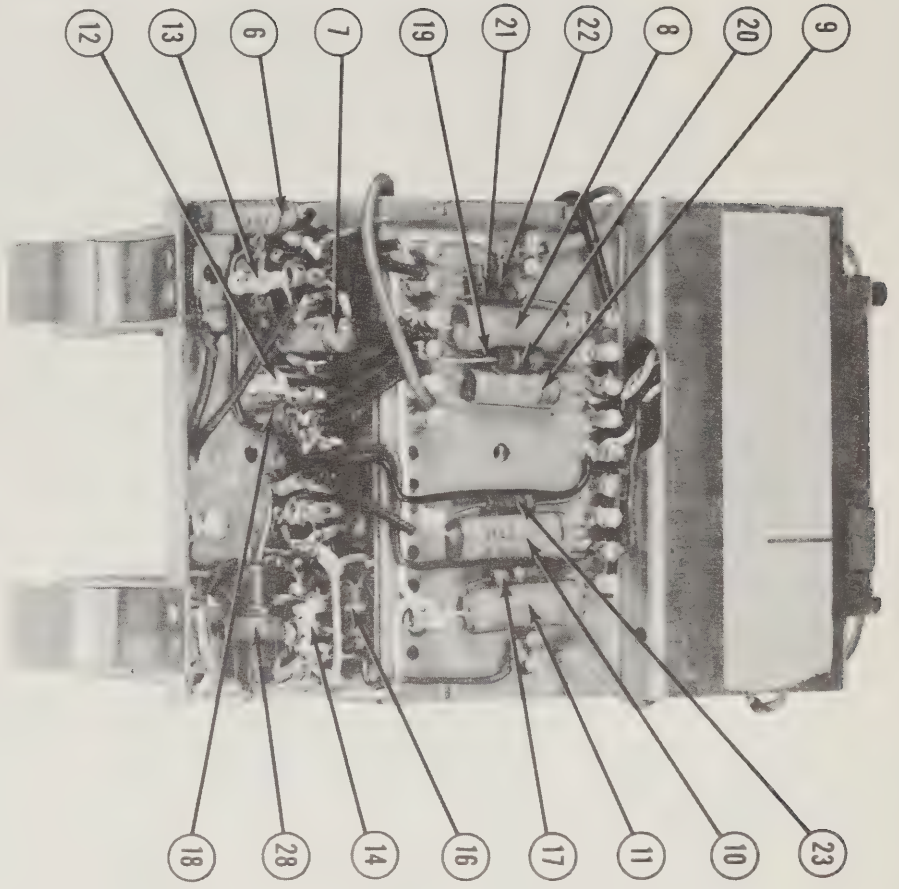
ITEM No.	VOLTAGE	AUTOMATIC PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
31 32	1.5V "A" 67.5V"B"		950	467		2R	XX45		2 Used in Parallel

MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
33	2 Gang Var. Cap.	CV-96	(23-403MMF, 26-138 MMF)

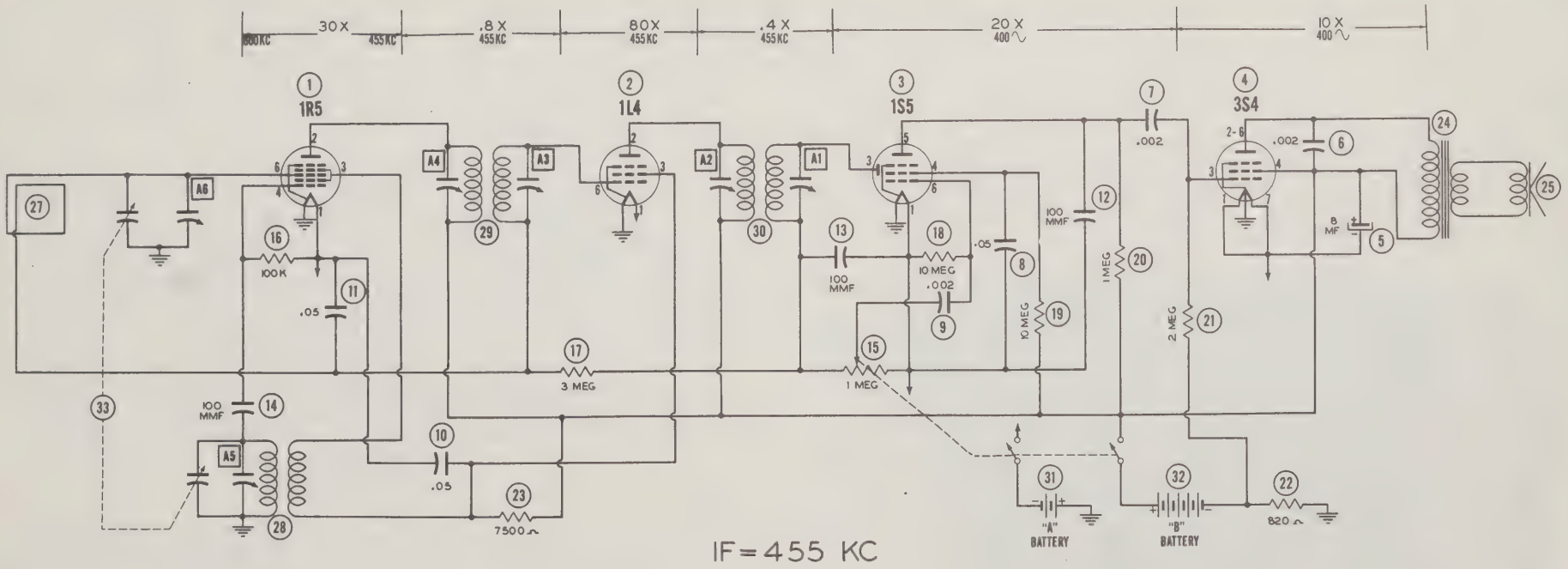


CHASSIS—BOTTOM VIEW



AUTOMATIC MODEL TOM THUMB CAMERA-RADIO

AUTOMATIC MODEL TOM THUMB CAMERA-RADIO



IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	-1.4VDC	60VDC	40VDC	-8.6VDC§	-1.4VDC	-.9VDC	0V.
2	1L4	-1.4VDC	60VDC	40VDC	0V.	-1.4VDC	-.9VDC	0V.
3	1S5	-1.4VDC	0V.	-.7VDC	1VDC	30VDC	-.8VDC	0V.
4	3S4	-1.4VDC	57VDC	-1.5VDC	60VDC	0V.	57VDC	-1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	70KΩ	80KΩ	100KΩ	*	4 Meg.	0Ω
2	1L4	*	70KΩ	80KΩ	INF.	*	4 Meg.	0Ω
3	1S5	*	INF.	1 Meg.	10 Meg.	1.1 Meg.	10 Meg.	0Ω
4	3S4	*	70KΩ	2 Meg.	70KΩ	0Ω	70KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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4819-6

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

CONCORD MODELS
1-516, 1-517

CONCORD MODELS
1-516, 1-517

CONCORD MODEL 1-516

TRADE NAME	Concord, Models 1-516, 1-517
SUPPLIER	Concord Radio Corp., 901-11 W. Jackson Blvd., Chicao 7, Ill.
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .22 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Volume control at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust A5 for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 11/48-#4819-7 SET #49-FOLDER #7

PARTS LIST AND DESCRIPTIONS

CONCORD MODELS 1-516, 1-517

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CONCORD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BZ	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CONCORD PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		PRS150/30-50	EDL5315	DSB-5030-150	TA530	Filter
B	30	150						"
7	.05	200		484-05	DT2S5	ST-4-05	TC-15	Line Filter
8	.1	400		484-.1	DT4P1	ST-4-1	72P2	Line Isolation
9	.05	200		484-05	DT4S5	ST-4-05	TC-15	Audio Coupling
10	.005	600		684-005	DT6D5	ST-6-005	TC-25	" "
11	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Phono Isolation
12	.05	200		484-05	DT2S5	ST-4-05	TC-15	AVC Filter
13	.002	600		684-002	DT6D2	ST-6-002	TC-22	Ext. Ant. Isolation
14	220	500		1468-0002	5W5T2	MO.5-32	1FM-32	AF Plate Bypass
15	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	Diode RF Filter
16	100	500		1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONCORD PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	½	S1016	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 17A as per instructions
C	Switch		" "	41	SW-A	" " " " " "

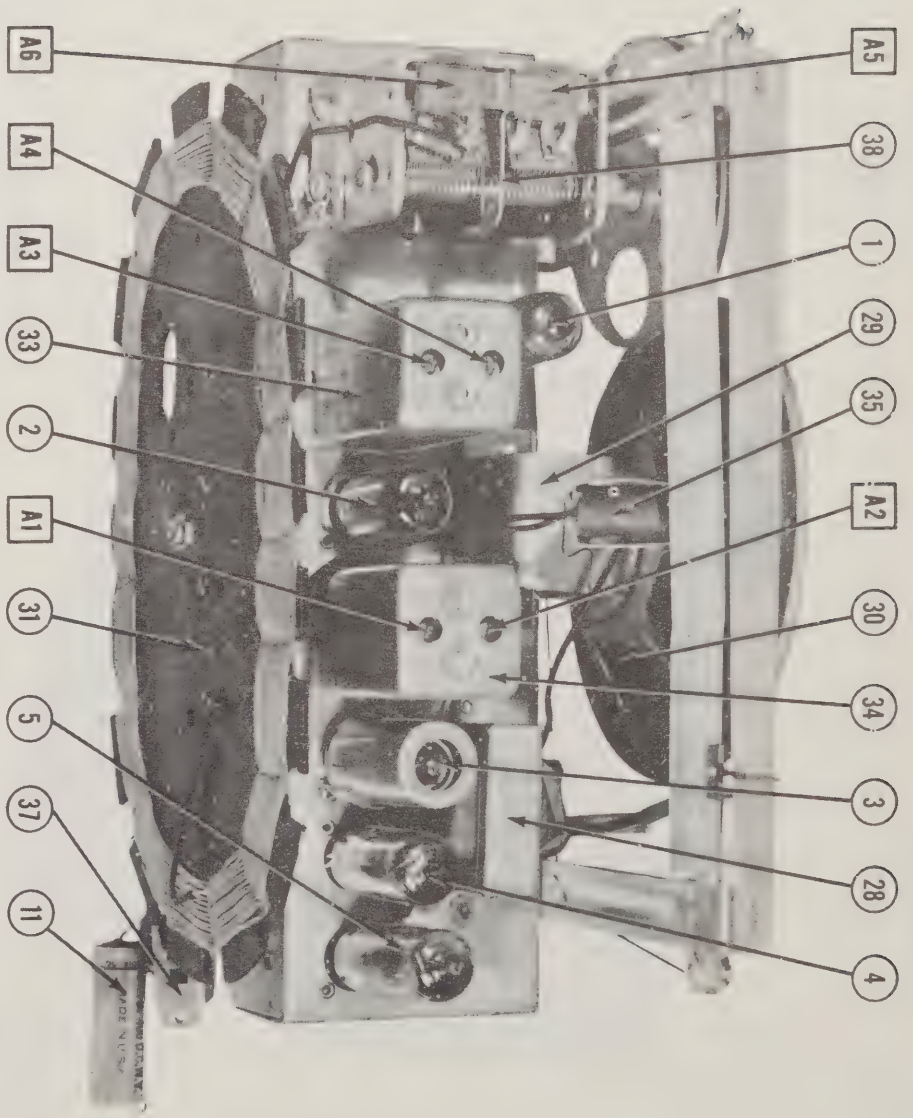
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONCORD PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
18	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Osc. Grid
19	33Ω	½		BW-½-33	Or.-Or.-Blk. Parasitic Suppressor
20	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode Filter
22	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
25	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode
26	1500Ω	1		BTA-1500	Br.-Grn.-Red Filter
27	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CONCORD PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
28	1700Ω	3.4Ω	107Ω tapped @ 5Ω	.3Ω		A-3330		A-3031	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CONCORD PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-105		
29	PM	3.4Ω		Mod. P5-X	5A15	
	CONE DIA.	VC DIA.				
30	4½"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	CONCORD PART No.	MEISSNER PART No.	
31	Loop Ant.	0Ω	1.3Ω			
32	Osc. Coil		10.8Ω		14-1060	
33	Input IF	13Ω	16Ω		16-6658	
34	Output IF	7.3Ω	16Ω		16-6660	

DIAL LIGHT

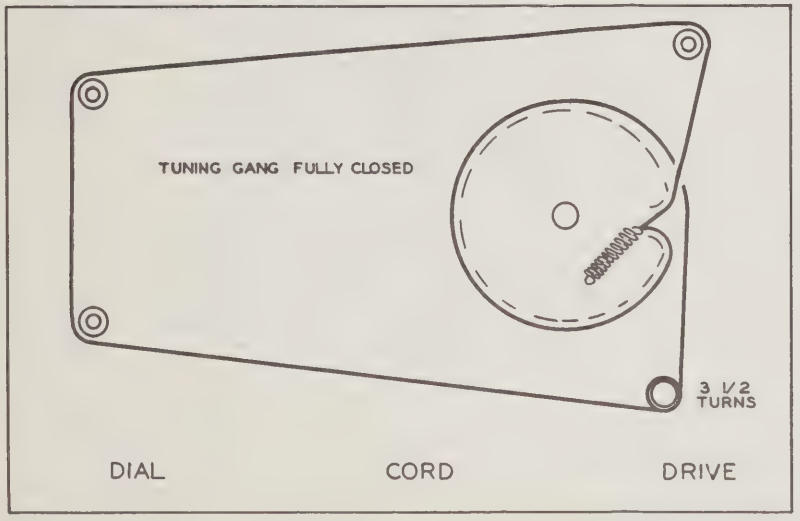
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CONCORD PART No.		
35	Bayonet	6-8	0.15	Brown			Type 47

PHONO CARTRIDGE

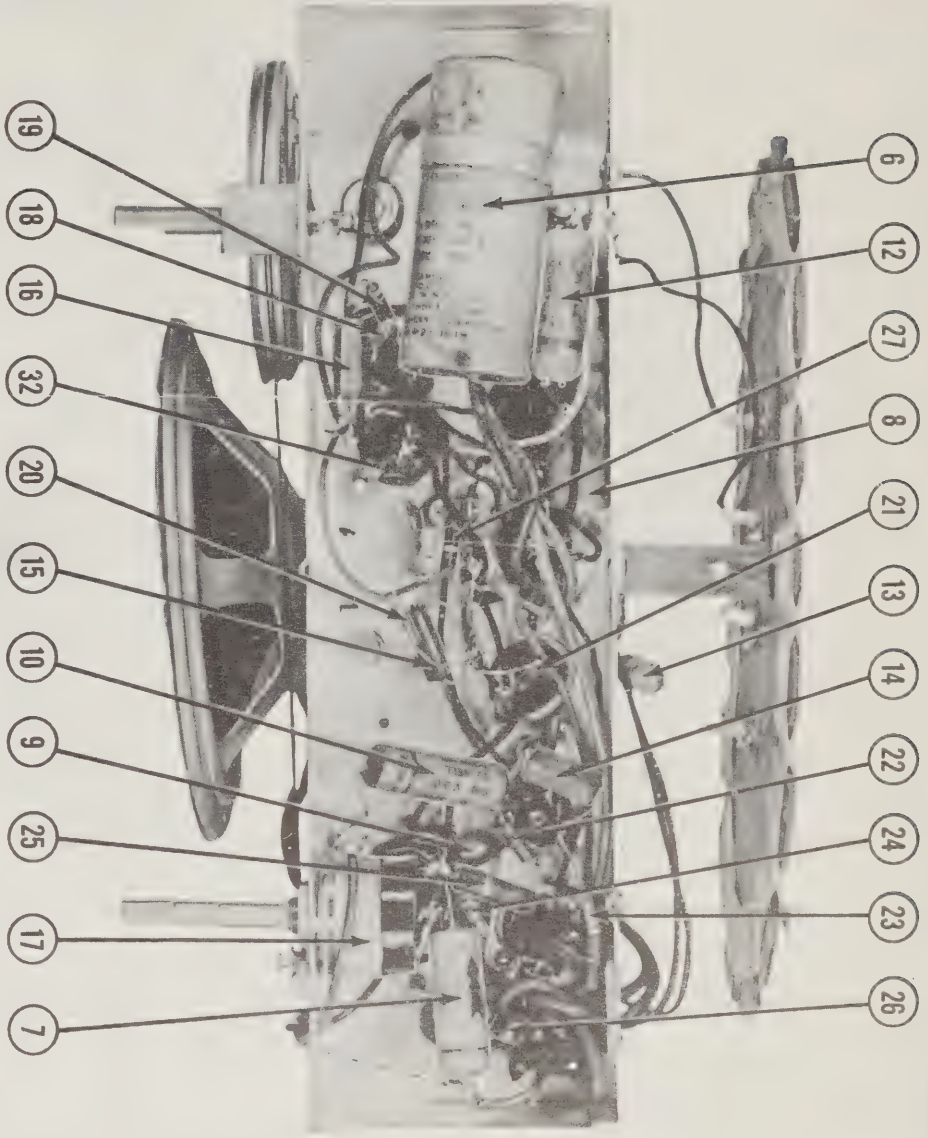
ITEM No.	REPLACEMENT DATA		REMARKS
	CONCORD PART No.	ASTATIC PART No.	
36		L-40A	L-40A original part.

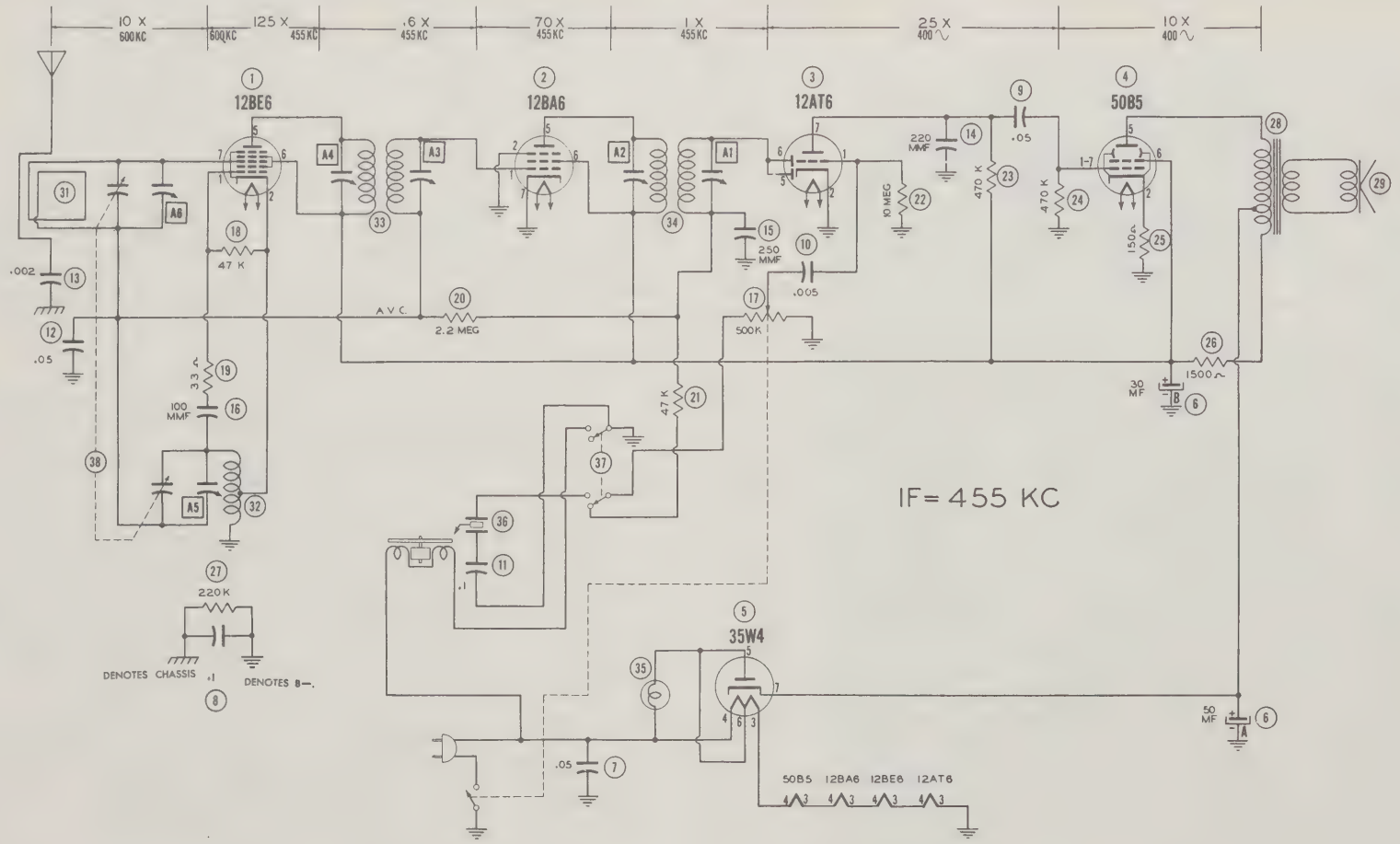
MISCELLANEOUS

ITEM No.	PART NAME	CONCORD PART No.	NOTES
37	Switch		Radio-Phono
38	2 Gang Var. Cap		(27-458MMF, 33-196MMF)



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-8VDC§	0V.	12VAC	24VAC	75VDC	75VDC	-.2VDC
2	12BA6	-.6VDC	0V.	24VAC	37VAC	75VDC	75VDC	0V.
3	12AT6	-.6VDC	0V.	0V.	12VAC	-.6VDC	-.6VDC	40VDC
4	50B5	0V.	7.2VDC	37VAC	85VAC	105VDC	75VDC	0V.
5	35W4	110VDC	117VAC	85VAC	117VAC	113VAC	113VAC	110VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	47KΩ	1Ω	13Ω	27Ω	30KΩ	30KΩ	2.7 Meg.
2	12BA6	2.7 Meg.	0Ω	27Ω	40Ω	30KΩ	30KΩ	∞
3	12AT6	10 Meg.	0Ω	0Ω	13Ω	550KΩ	550KΩ	50KΩ
4	50B5	470KΩ	150Ω	40Ω	90Ω	30KΩ	30KΩ	470KΩ
5	35W4	30KΩ	120Ω	60Ω	120Ω	115Ω	115Ω	30KΩ

RADIO-PHONO SWITCH IN RADIO POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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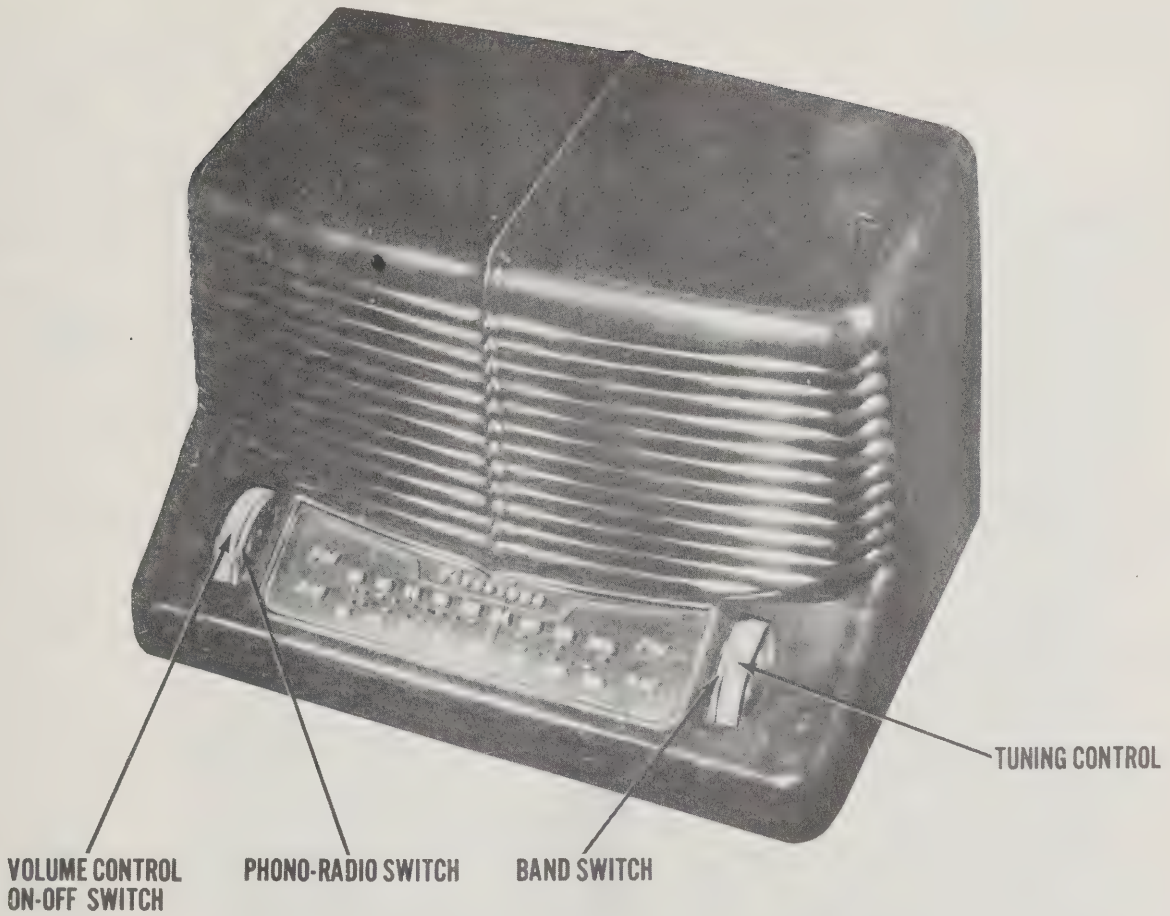
4819-7

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FIRESTONE (AIR CHIEF) MODEL
4-A-12 (Code No. 213-8-8370)



FIRESTONE (AIR CHIEF) MODEL
4-A-12 (Code No. 213-8-8370)

FIRESTONE MODEL 4-A-12

TRADE NAME	Firestone, Model 4-A-12 (Code #213-8-8370)		
SUPPLIER	The Firestone Tire and Rubber Co., Akron, Ohio		
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES (SIX)	Types, 12AT7 FM Converter, 12BE6 AM Converter, 12BA6 AM-FM IF Amp., 12BA6 FM IF Amp., 19T8 Det.-AVC-AF, 50L6GT Power Output.		
POWER SUPPLY	110-120 Volts AC-DC	RATING	.34 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC	FM	88-108MC

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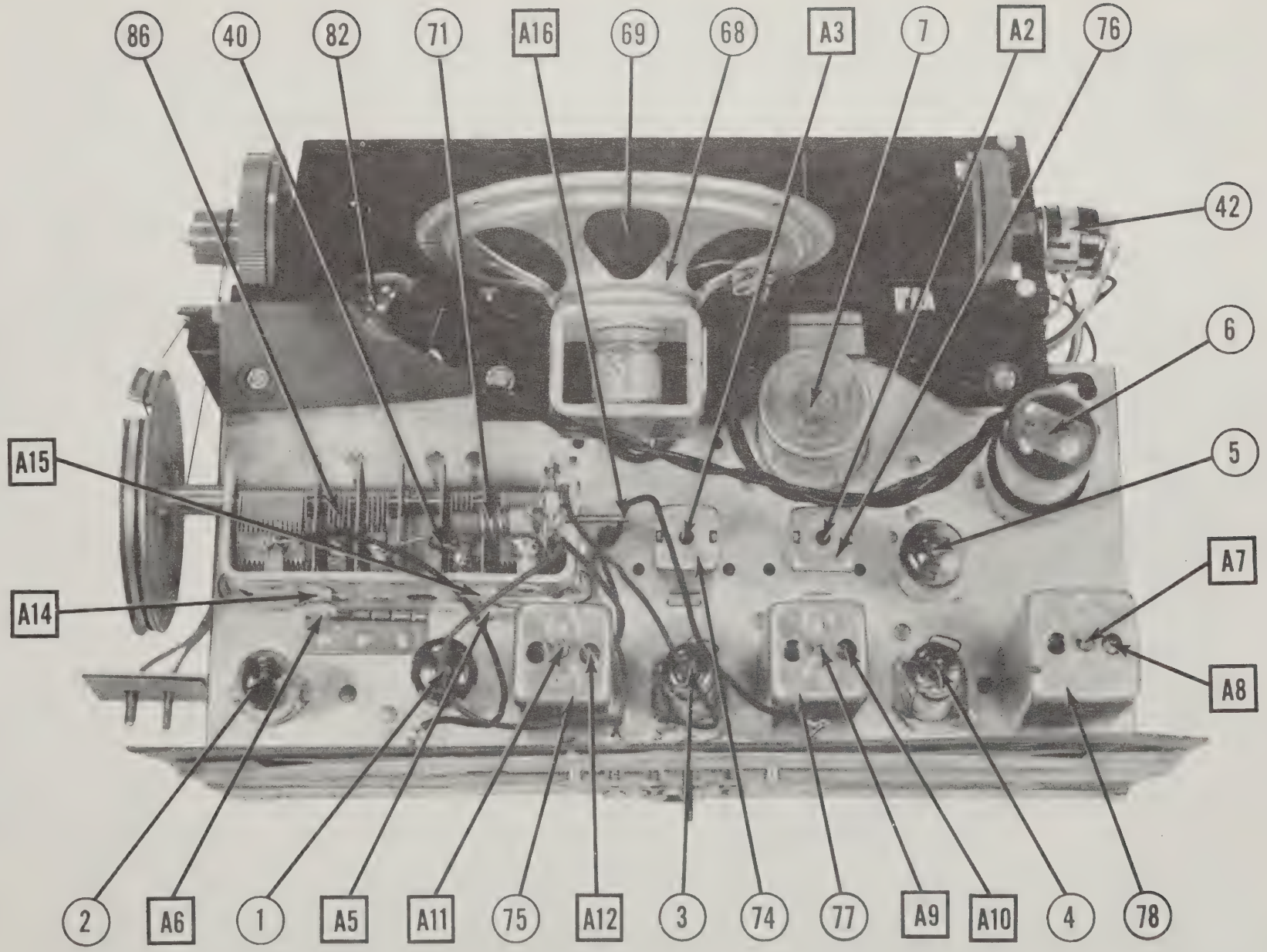
DATE 11/48-#4819-8 SET #49-FOLDER #8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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM Conv.	12AT7	12AT7		
2	AM Conv.	12BE6	12BE6	7CH	
3	AM-FM IF Amp.	12BA6	12BA6	7BK	
4	FM IF Amp.	12BA6	12BA6	7BK	
5	Det.-AVC-AF	19T8	19T8		
6	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	A55521	AF444D4A#	UP44315C	DY-401	EL-224	◓ Filter
B	20	150		PRS150/20			TA-25	■ "
C	20	150						▲ "
D	20	25						Cathode Bypass Stabalizing Cap.
8	4	50	B-55520-3	PRS150/4	BR550	M-4-450	TA-55	Line Filter
9	.05	400	BD410503	484-05	DT4S5	ST-4-05	TC-15	Output Plate Bypass
10	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	Audio Coupling
11	.02	400	BD410203	484-02	DT4S2	ST-4-02	TC-12	De-emphasis
12	.001	600	BD610102	684-001	DT6D1	ST-6-001	TC-21	Fil. Bypass
13	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	2nd IF Decoupling
14	.05	400	BD410503	484-05	DT4S5	ST-4-05	TC-15	Tone Compensation
15	.003	600	BD610302	684-003	DT6D3	ST-6-003	TC-23	Fil. Bypass
16	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	1st IF Decoupling
17	.05	400	BD410503	484-05	DT4S5	ST-4-05	TC-15	AVC Filter
18	.05	200	BD210503	484-05	DT2S5	ST-4-05	TC-15	" "
19	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	FM Osc. Conv. Fil.Byp.
20	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	" " " " "
21	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	AM Conv. Fil. Bypass
22	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	Dial Plate Isolation
23	.01	400	BD410103	484-01	DT4S1	ST-4-01	TC-11	Output Grid Bypass
24	220	300	B-58812-5	1468-0002	5W5T2	MO.5-32	1FM-32	Audio Coupling
25	10000	300	B-58814-2	1441W-.01	1D3S1	MW.3-11	1FM-11	Fixed Trimmer
26	39	300	B-58805-6					Fil. Bypass
27	2700	300	B-58815-6	1441W-0025	1W5D25	MW.5-225	1FM-23	Diode Load Cap.-Note 1
28	100	300	B-58813-18	1469-0001	5R5T1	MOS.5-31	MS-31	" " " " " "
29	100	300	B-58813-18	1469-0001	5R5T1	MOS.5-31	MS-31	2nd IF Cathode Bypass
30	10000	300	B-58814-2	1441W-.01	1D3S1	MW.3-11	1FM-11	Line Ant. Coupling
31	100	300	B-58804-18	1468-0001	5W5T1	MO.5-31	1FM-31	AM Diode RF Filter
32A	100	300	*	1469-0001	5R5T1	MOS.5-31	MS-31	" " " "
B	100	300		1469-0001	5R5T1	MOS.5-31	MS-31	FM Conv. Cathode Bypass
33	2700	300	B-58815-6	1441W-0025	1W5D25	MW.5-225	1FM-23	FM Conv. Plate Decoup.
34	2700	300	B-58815-6	1441W-0025	1W5D25	MW.5-225	1FM-23	FM Conv. Plate Bypass
35	20	300		1468-000025	5W5Q2	MO.5-42	1FM-42	RF Coupling
36	220	300	B-58810-8	1468-0002	5W5T2	MO.5-32	1FM-32	FM Osc. Coupling
37	2700	300	B-58815-6	1441W-0025	1W5D25	MW.5-225	1FM-23	FM Osc. Grid Cap.
38	27	300	B-58808-2	1469-000025	5R5Q25	MOS.5-425	MS-425	FM Osc. Compensation
39	20	300	B-58807-12	1468-00002	5W5Q2	MO.5-42	1FM-42	Osc. Coupling
40	1.5	300	B-51839-3	1468-000001				AM Osc. Grid Cap.
41	100	300	B-58809-16	1469-0001	5R5T1	MOS.5-31	MS-31	

Note 1-When either Item #28 or 29 are replaced, replace both with capacitors of equal value.
*Item #32A, 32B and 50 are combined in one unit and may be obtained under Part #B58852-1.
#Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
42	2 Meg.	½	B-55585-1			Volume Control & Sw.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: FIRESTONE PART No.	REPLACEMENT DATA: MEISSNER PART No.	
70	Loop Ant.		1.1Ω	D-59681		
71	FM Ant.Coil	0Ω	0Ω	B-59692		
72	AM Osc. "	.8Ω	8.4Ω	B-57842	14-1060	
73	FM " "		0Ω	B-59693		
74	AM Input IF	16.2Ω	15.8Ω	C-59694	16-6678‡	‡Add 10 MMFD from high side of sec. lead to ground.
75	FM 1st IF	.2Ω	.3Ω	B-59665-1		
76	AM Output IF	16Ω	16.2Ω	C-59564	16-6678$	$Add 10 MMFD from plate lead of primary side to ground.
77	FM 2nd IF	.3Ω	.2Ω	B-59680-1		
78	FM Det. Trans.	.6Ω	.1Ω	B-59695-1		
79	Plate Choke		1.8Ω	B-59572		
80	Fil. Choke		1.8Ω	B-57931		
81	Line Choke		.3Ω	B-57931		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: FIRESTONE PART No.		INSTALLATION NOTES
82	Screw	120			A-55431		Type 7C7

MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
83	Switch	A-55506	Band
84	"	A-55507	Tone
85	Rectifier	A-58612	Selenium
86	Tuning Gang	C-59663-1	(25-463MMF, 25-185MMF) Am
	Cabinet	E-59660-1	
	Dial	D-59671-1	
	Dial Pointer	B-59580	
	Knob	C-59658-1	Tuning
	"	C-59659-1	Volume

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FIRESTONE PART No.	IRC PART No.	
43	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. FM Conv. Grid
44	15KΩ	½	BR17B153	BTS-15K	Br.-Grn.-Or. FM Osc. Grid
45	1000Ω	½	BR17B102	BTS-1000	Br.-Blk.-Red FM Conv. Plate Decoupling
46	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. AVC Network
47	22KΩ	½	BR17B223	BTS-22K	Red-Red-Or. AM Osc. Grid
48	1000Ω	½	BR17B102	BTS-1000	Br.-Blk.-Red 1st IF Decoupling
49	2.2 Meg.	½	BR17B225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
50	47KΩ	½	*	BTS-47K	Diode Filter
51	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Diode Load
52	68Ω	½	BR17B680		Blue-Gray-Blk. 2nd IF Cathode
53	1000Ω	½	BR17B102	BTS-1000	Br.-Blk.-Red 2nd IF Decoupling
54	47KΩ	½	BR17B473	BTS-47K	Yl.-Vi.-Or. De-emphasis
55	15KΩ	½	BR17B153	BTS-15K	Br.-Grn.-Or. Ratio Det. Diode Load
56	330Ω	½	BR16B331		Or.-Or.-Br. Balancing Resistor
57	2.2 Meg.	½	BR17B225	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
58	2.2 Meg.	½	BR17B225	BTS-2.2 Meg.	Red-Red-Grn. " "
59	6.8 Meg.	½	BR17B685	BTS-6.8 Meg	Blue-Gray-Grn. AF Grid
60	220KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. AF Plate Load
61	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Output Grid
62	120Ω	1	BR16E121	BW-1-120	Br.-Red-Br. Output Cathode
63	820Ω	1	BR16E821	BTS-820	Gray-Red-Br. Filter
64	22Ω	1	BR17E220	BW-1-22	Red-Red-Blk. Surge Limiter
65	33Ω	1	BR17E330	BW-1-33	Or.-Or.-Blk. Line Dropping
87	2200Ω	½	BR17B222	BTS-2200	Red-Red-Red Converter Cathode

*Items 50 and 23A, B are combined in one unit and may be obtained under Part #B-58852-1.

FILTER CHOKE

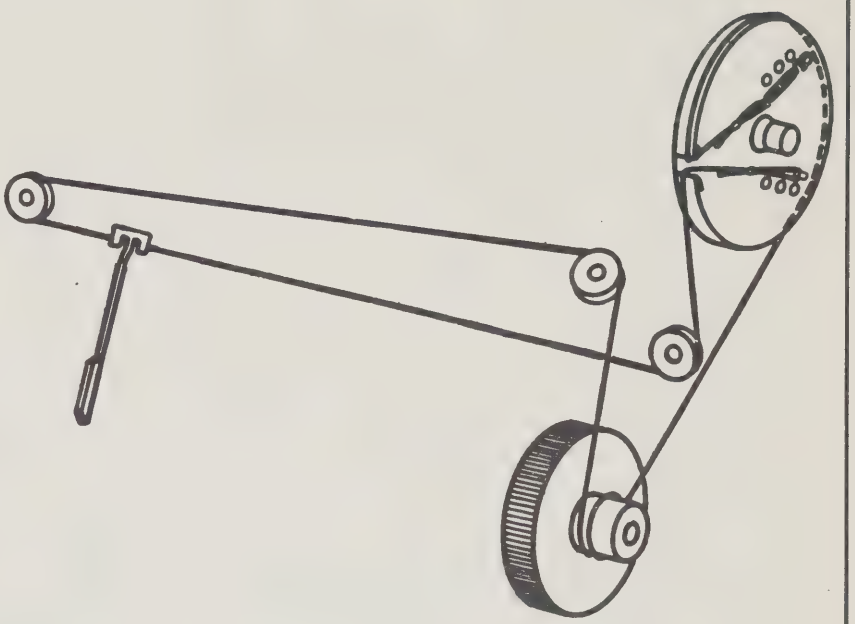
ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000^)	FIRESTONE PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
66	.075A DC	100Ω	2 Henries	B-51726-1	C-1709†		C-2975†	†Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FIRESTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
67	3150Ω	3.3Ω	240Ω	.4Ω	C59563-1	A-3876	T22S46	A-2930	

SPEAKER

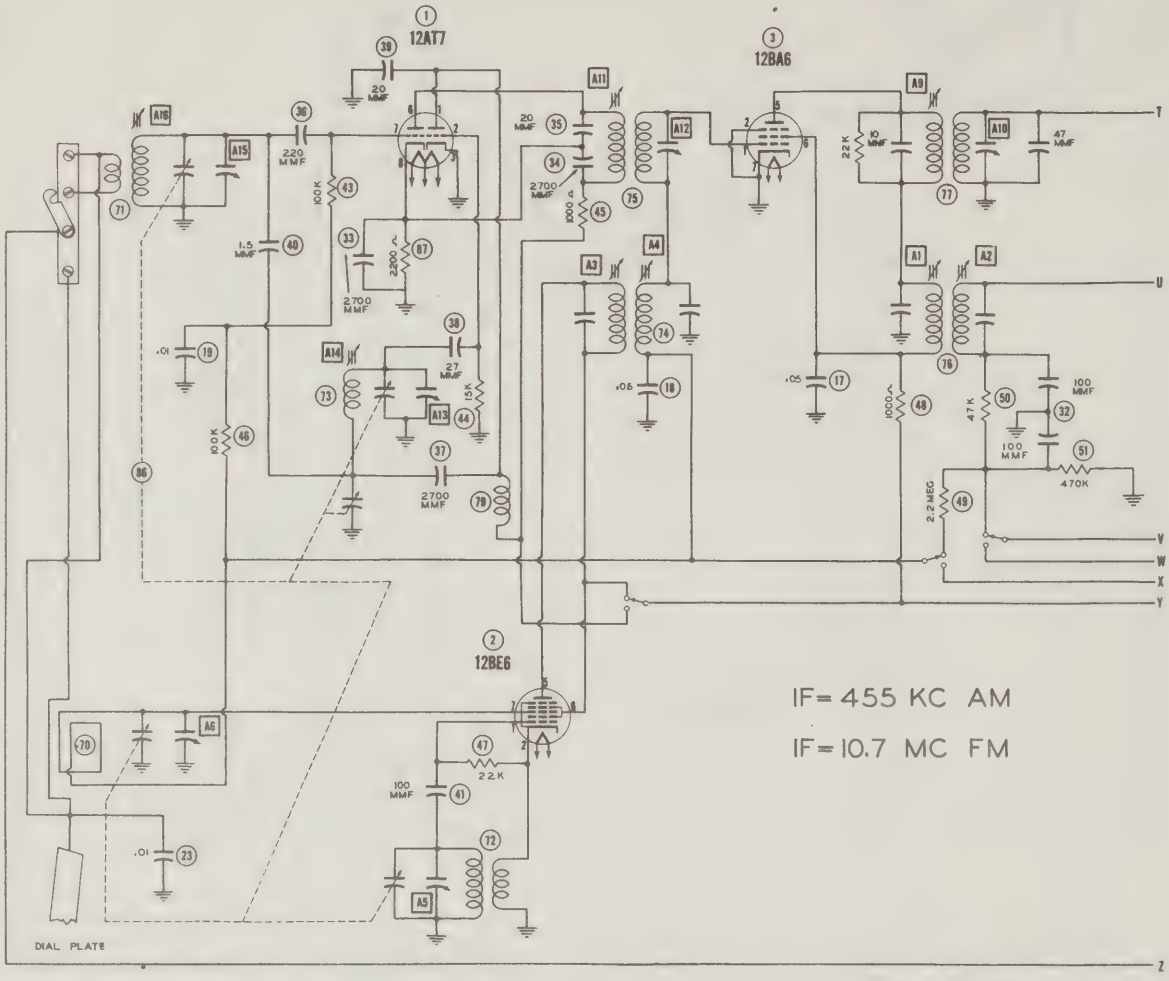
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	FIRESTONE PART No.	JENSEN PART No.	QUAM PART No.	
68	PM	3.3Ω	D-59657	ST-105 Mod. P5-X	5A15	
	CONE DIA.	VC DIA.				
69	4-5/16"	9/16"				



DRIVE CABLE ARRANGEMENT: To string dial cable, set the gang condenser to fully meshed position. Use the following parts for assembly:

B-55402-2 Cable Assembly
A-51787 Spring, Cable
B-59580 Pointer Assembly

DATE 11/48-#4819-8 SET #49-FOLDER #8



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
‡ 1	12AT7	95VDC	-5VDC§	0V.	70VAC	55VAC	95VDC	-.4VDC	1VDC	60VAC
2	12BE6	-10VDC§	0V.	17VAC	29VAC	95VDC	95VDC	-.5VDC	-	-
3	12BA6	-.6VDC	0V.	55VAC	47VAC	80VDC	80VDC	0V.	-	-
4	12BA6	0V.	0V.	42VAC	29VAC	80VDC	80VDC	.8VDC	-	-
‡ 5	19T8	-.2VDC	-.4VDC	-.2VDC	0V.	17VAC	-.4VDC	0V.	-.8VDC	55VDC
6	50L6GT	0V.	117VAC	110VDC	95VDC	0V.	0V.	70VAC	5.6VDC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
‡ 1	12AT7	30KΩ	15KΩ	0Ω	75Ω	65Ω	31KΩ	2.4 Meg.	2.2KΩ	70Ω
2	12BE6	22KΩ	.8Ω	17Ω	30Ω	30KΩ	30KΩ	2.7 Meg.	-	-
3	12BA6	2.7 Meg.	0Ω	65Ω	60Ω	31KΩ	31KΩ	0Ω	-	-
4	12BA6	.2Ω	0Ω	40Ω	30Ω	31KΩ	31KΩ	68Ω	-	-
‡ 5	19T8	2 Meg.	15KΩ	2 Meg.	0Ω	17Ω	500KΩ	0Ω	6.5 Meg.	250KΩ
6	50L6GT	INF.	90Ω	30KΩ	30KΩ	470KΩ	INF.	7KΩ	120Ω	-

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC.

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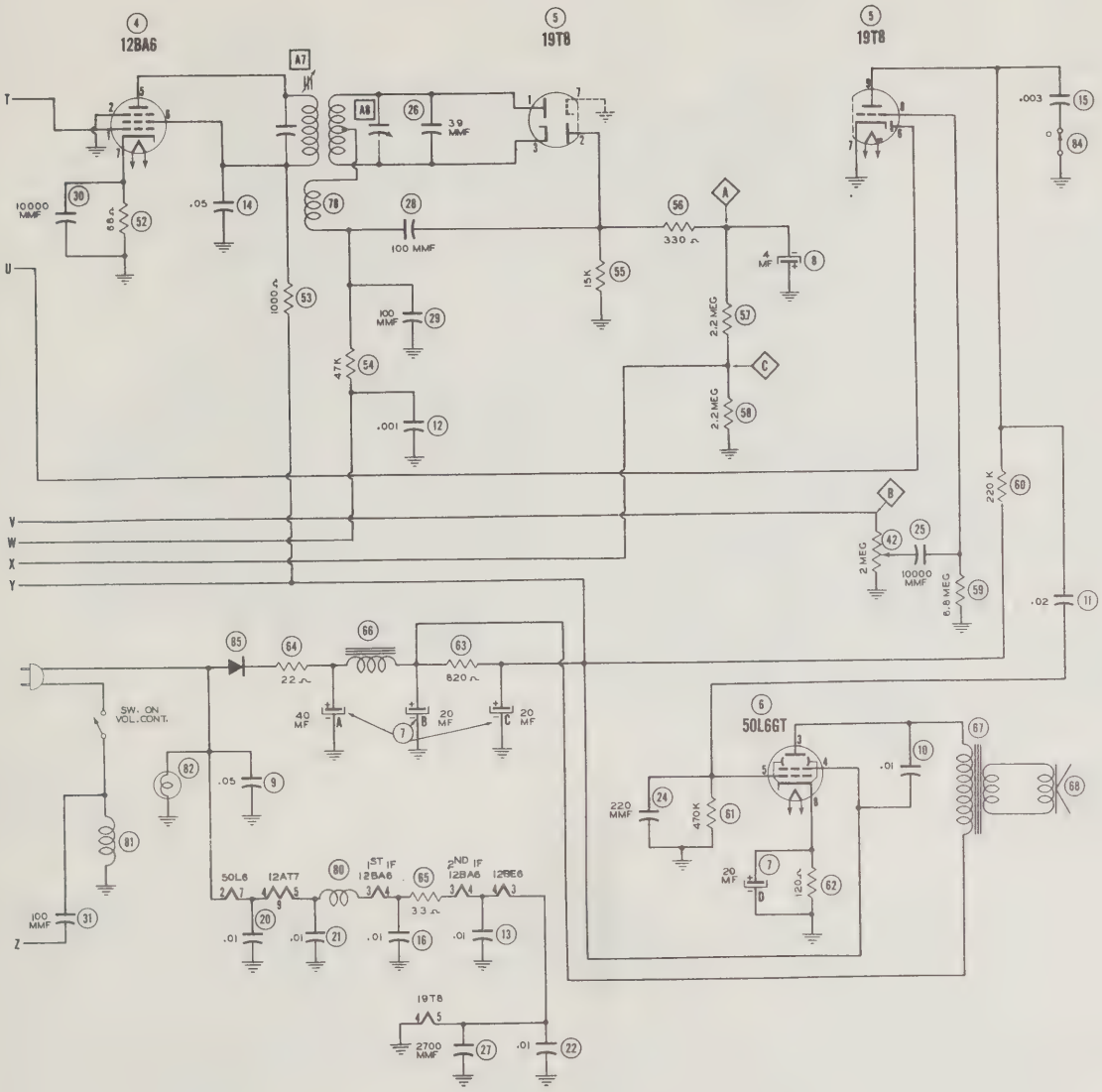

STAGE GAIN MEASUREMENTS		
ANTENNA TO CONVERTER GRID	12X	600KC
CONVERSION GAIN	60X	IN 600KC OUT 455KC
INPUT IF TRANSFORMER	.4X	455KC
IF TUBE	130X	455KC
OUTPUT IF TRANSFORMER	1X	455KC
AUDIO	30X	400 ∿
OUTPUT	25X	400 ∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Use insulated alignment screwdriver for all adjustments.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 7 (grid) of 12BE6. Low side to chassis.	455KC	AM (Toward bottom of dial)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	.1 MFD.	"	1620KC	"	"	"	A5	Adjust for maximum output.
3		Loop.	1400KC	"	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4	.1 MFD.	High side to Pin 1 (grid) of 12BA6 2nd IF Tube (4). Low side to chassis.	10.7MC (Unmodulated)	FM (Toward top of dial)	Tuning cap. fully open.	DC probe to Point (A). Common to chassis	A7	Adjust output of sig. gen. for approximately 4 volts deflection. Adjust A7 for maximum deflection.
5	.1 MFD.	"	"	"	"	DC probe to Point (B). Common to Point (C).	A8	Use a zero center VTVM if available and adjust for zero deflection.
6	.1 MFD.	High side to Pin 7 (grid) of 12AT7. Low side to chassis.	"	"	"	DC probe to Point (A). Common to chassis	A9,A10 All, A12	Adjust for maximum deflection. Continue with FM-RF Alignment in Step 7.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4	.01 MFD	High side to Pin 1 (grid) of 12BA6 1st IF Tube (3). Low side to chassis.	10.7MC (Freq. Mod.)	FM (Towards top of dial)	Tuning cap. fully open.	Vertical input to Point (A). Ground to chassis.	A7,A9, A10	Disconnect 4 MFD cap. (8) from Point (A). Adjust A7, A9 & A10 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
5	.01 MFD.	High side to Pin 7 (grid) of 12AT7. Low side to chassis.	"	"	"	"	A11, A12	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect 4 MFD. cap. (8) to Point (A).
6	.01 MFD.	"	"	"	"	Vertical input to Point (B). Ground to Point (C).	A8	Adjust for max. straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. Cont. with FM-RF Alignment with FM sig.gen. and output meter or AM signal gen. & VTVM depending upon which equipment is available.

FM RF ALIGNMENT USING FM SIGNAL GENERATOR AND OUTPUT METER

Use frequency modulated signal with 400 ∿ modulation and 22.5KC deviation.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7	300Ω carbon res.	High side to FM ant. terminal "J". Low side to chassis. (Link disconnected)	108.5MC (400 ∿ modulation, 22.5 KC deviation)	FM	Tuning cap. fully open.	Across voice coil	A13	Adjust for maximum output
8	"	"	87.5MC	"	Tuning cap. fully closed	"	A14	Adjust for maximum output Repeat Steps 7 & 8 until no further improvement can be made.
9	"	"	108MC	"	Tune for maximum output.	"	A15	Adjust for maximum output
10	"	"	87.5MC	"	"	"	A16	Adjust for maximum output. Repeat Steps 9 & 10 until no further improvement can be made.

FM RF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7	300Ω carbon res.	High side to FM ant. terminal "J". Low side to chassis. (Link disconnected)	108.5MC (Unmodulated)	FM	Tuning cap. fully open.	DC probe to Point (A). Common to chassis	A13	Adjust for maximum deflection.
8	"	"	87.5MC	"	Tuning cap. fully closed	"	A14	Adjust for maximum deflection. Repeat Steps 7 & 8 until no further improvement can be made.
9	"	"	108MC	"	Tune for maximum deflection.	"	A15	Adjust for maximum deflection.
10	"	"	87.5MC	"	"	"	A16	Adjust for maximum deflection. Repeat Steps 9 and 10 until no further improvement can be made.

FIG. 1

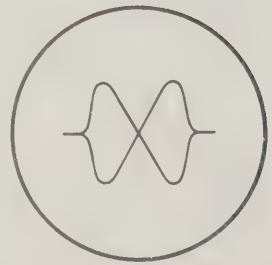
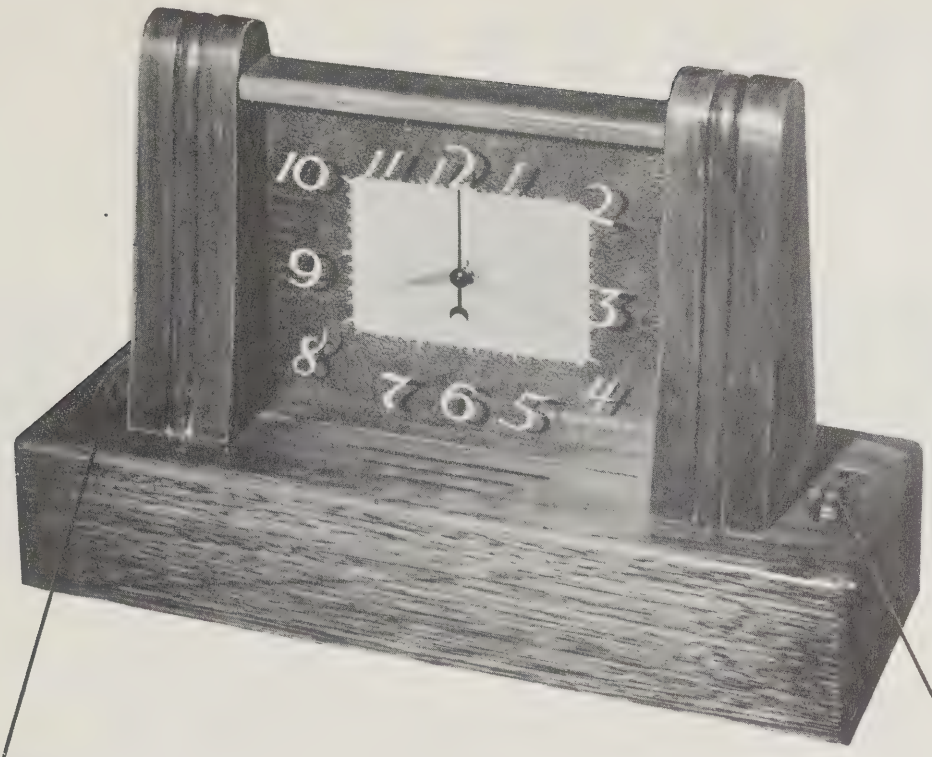


FIG. 2

GLOBE
MODEL 85



GLOBE
MODEL 85

GLOBE MODEL 85

TRADE NAME	Globe, Model 85
MANUFACTURER	Globe Electronics, Inc., 225 W. 17th St., New York, N.Y.
TYPE SET	AC Operated Superheterodyne Receiver with Electric Clock
TUBES (FIVE)	Types, 12BE6,Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output,, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1600KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 7 (grid) of 12BE6. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		GLOBE PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-Audio	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	GLOBE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	50	150		AF1010D	UP4415	DY-2x50-150	EL25	▲ Filter
B	50	150						■ "
7	.05	200		484-05	DT2S5	ST-4-05	TC-15	Line Filter
8	.02	600		684-02	DT6S2	ST-6-02	TC-12	Output Plate Bypass
9	.01	150		484-01	ZZW1S1	ST-4-01		Audio Coupling
10	.002	150		484-002	ZZW1D2	ST-6-002		" "
11	.05	200		484-05	DT2S5	ST-4-05	TC-15	AVC Filter
12	.01	150		484-01	ZZW1S1	ST-4-01	TC-11	Ant. Isolation
13	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	AF Plate Bypass
14	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	Diode RF Filter
15	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	RF Coupling

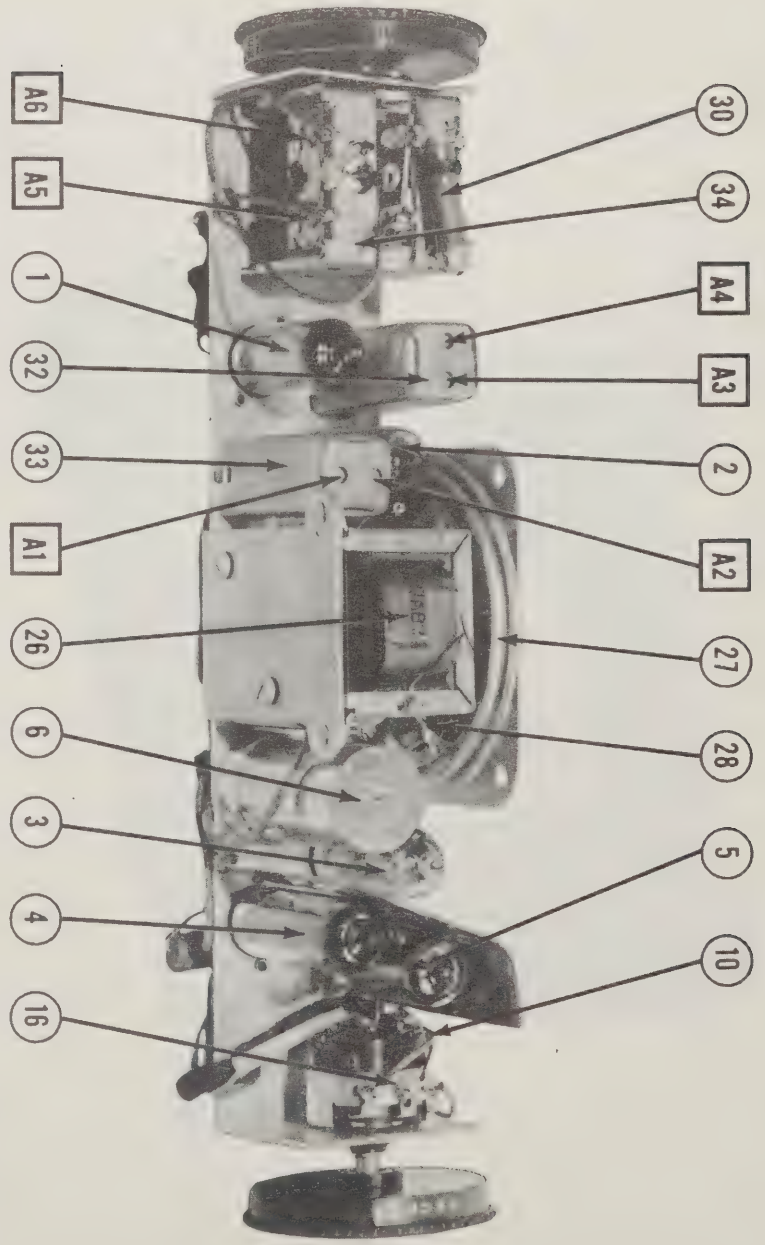
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	GLOBE PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	500KΩ	½		D13-133	M-60-Z	Volume Control
B	Shaft			A	Not Req.	Attach to 16A per instructions
C	Switch			41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	GLOBE PART No.	IRC PART No.	
17	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. Conv. Grid
18	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
19	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
20	170Ω	½		BW-½-180	Br.-Vi.-Br. IF Cathode
21	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
24	170Ω	½		BW-½-180	Br.-Vi.-Br. Output Cathode
25	1200Ω	1		BTA-1200	Br.-Red-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GLOBE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
26	17000Ω	3.3Ω	119Ω	.45Ω	21AB24	A-3876	T22845	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GLOBE PART No.	JENSEN PART No.	QUAM PART No.	
27	FIELD PM	VC IMP. 3.3Ω	32PL5		3A07#	#Drill and tap magnet frame.
28	CONE DIA. 3-3/8"	VC DIA. 9/16"				

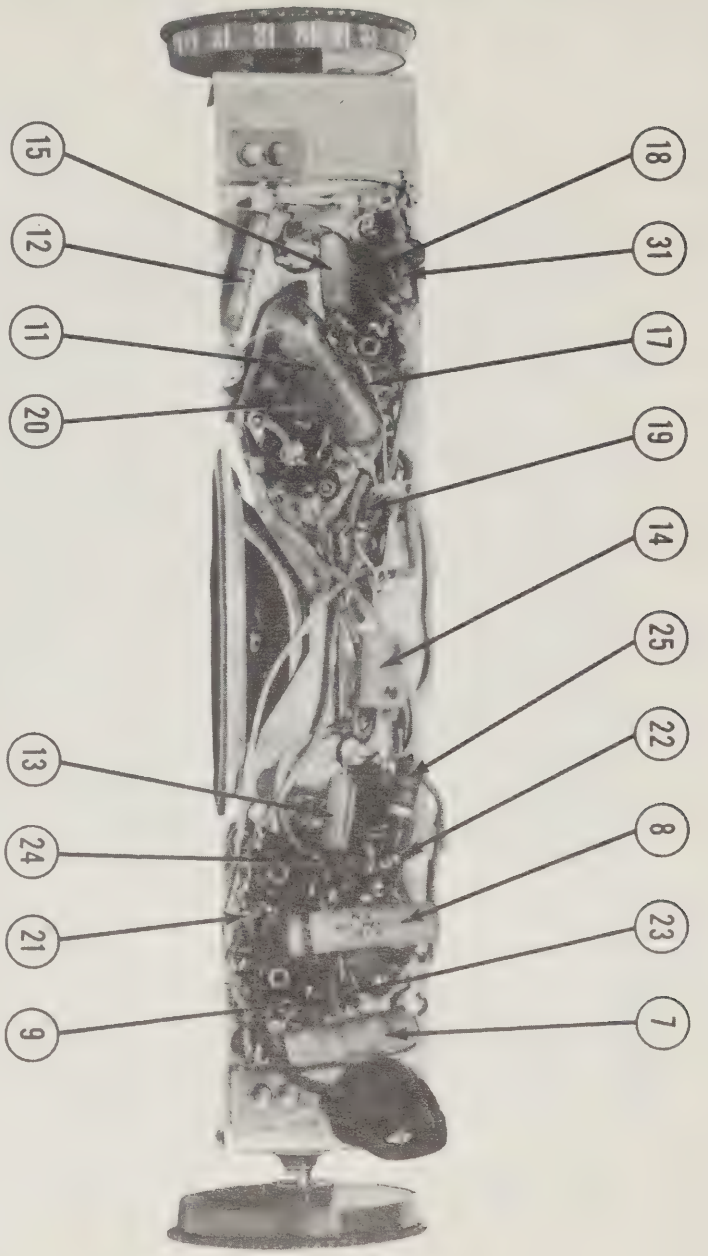
R F COILS

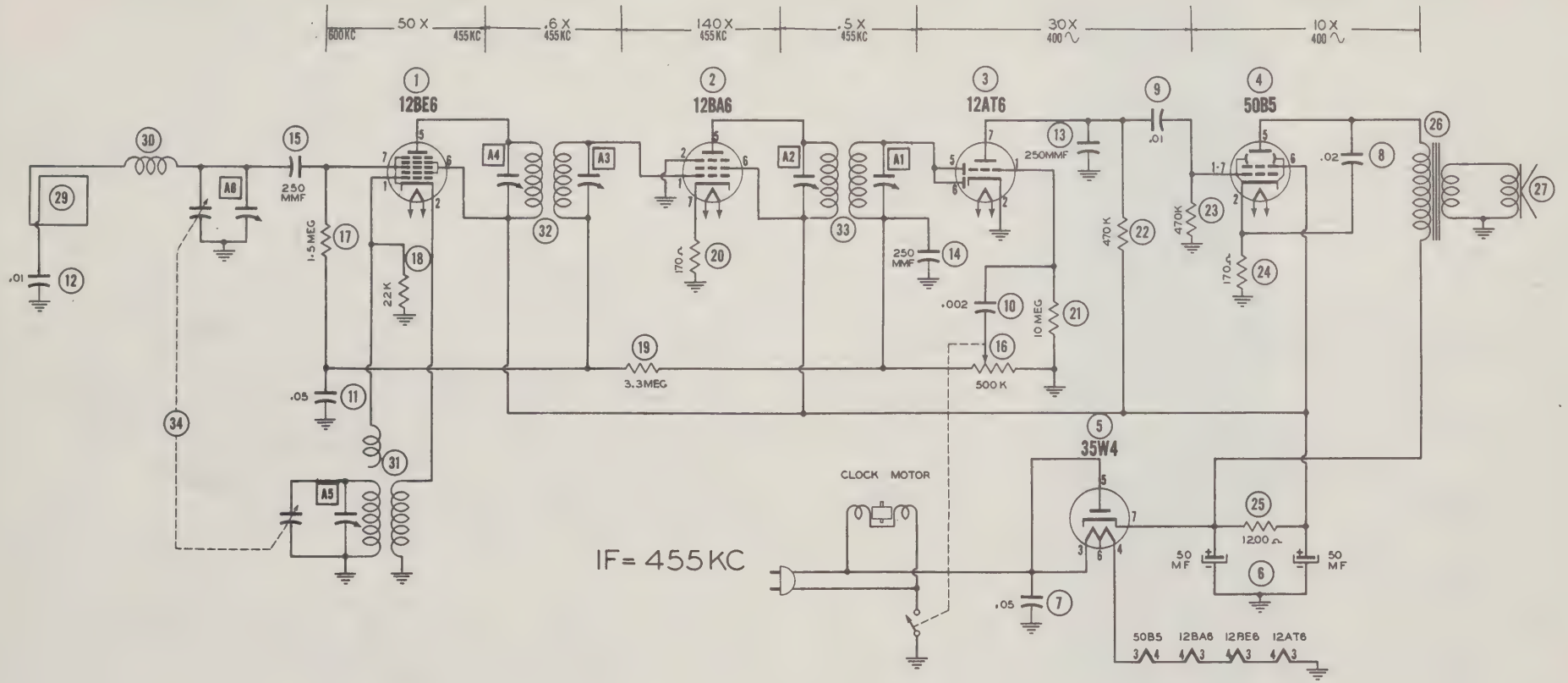
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	GLOBE PART No.	MEISSNER PART No.	
29	Loop Ant.		3Ω			
30	Loop Load. Coil		3.5Ω			
31	Osc. Coil	.5Ω	7Ω			
32	Input IF	13.5Ω	12.8Ω		16-6678	
33	Output IF	16Ω	23Ω		16-6678	

MISCELLANEOUS

ITEM No.	PART NAME	GLOBE PART No.	NOTES
34	2 Gang Var. Cap		(24-375MMF, 28-153MMF)

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-7VDC$	0V.	12VAC	24VAC	95VDC	95VDC	0V.
2	12BA6	0V.	0V.	24VAC	37VAC	95VDC	95VDC	2VDC
3	12AT6	-.5VDC	0V.	0V.	12VAC	-.5VDC	-.5VDC	35VDC
4	50B5	0V.	7.8VDC	80VAC	37VAC	125VDC	95VDC	0V.
5	35W4	7.8VDC	0V.	80VAC	117VAC	117VAC	109VAC	125VDC

$TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	.5Ω	14Ω	28Ω	100KΩ	100KΩ	5.3 Meg
2	12BA6	3.8 Meg.	0Ω	28Ω	42Ω	100KΩ	100KΩ	170Ω
3	12AT6	10 Meg.	0Ω	0Ω	14Ω	500KΩ	500KΩ	570KΩ
4	50B5	470KΩ	170Ω	90Ω	42Ω	100KΩ	100KΩ	470KΩ
5	35W4	170Ω	INF.	90Ω	122Ω	122Ω	118Ω	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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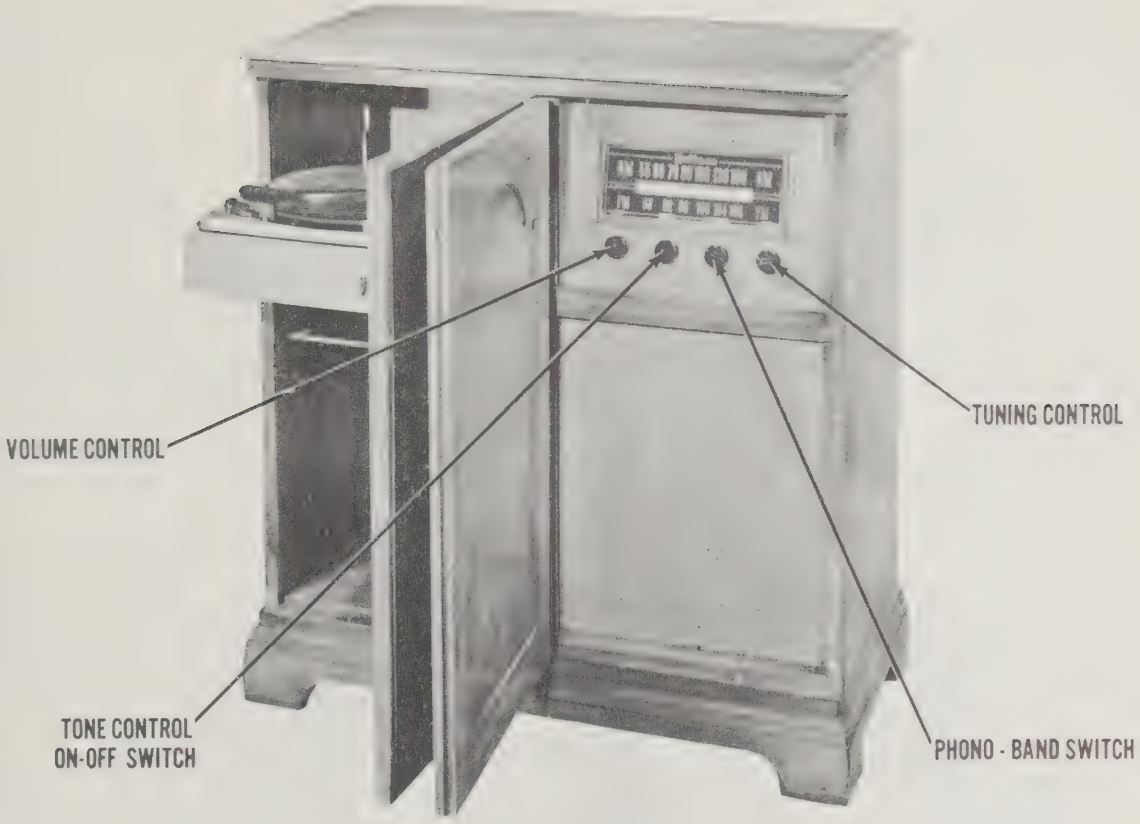
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HOFFMAN MODELS
C-506, C-507



HOFFMAN MODELS
C-506, C-507

HOFFMAN MODEL C-507

TRADE NAME	Hoffman, Model C-506, C-507		
MANUFACTURER	Hoffman Radio Corp., 3761 South Hill St., Los Angeles, Calif.		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna.		
TUBES (TEN)	Types, 7F8 FM Conv., 6BE6 AM Converter, 6BA6 AM-FM 1st IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 Ratio Det., 6AT6 AM Det.-AVC-AF, 6SN7GT Tone Amp.-Phase Inv., (2) 6K6GT Power Output, 5U4G Rectifier.		
POWER SUPPLY	110-120 Volts AC	RATING	.75 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	535-1650KC	FM	88-108MC

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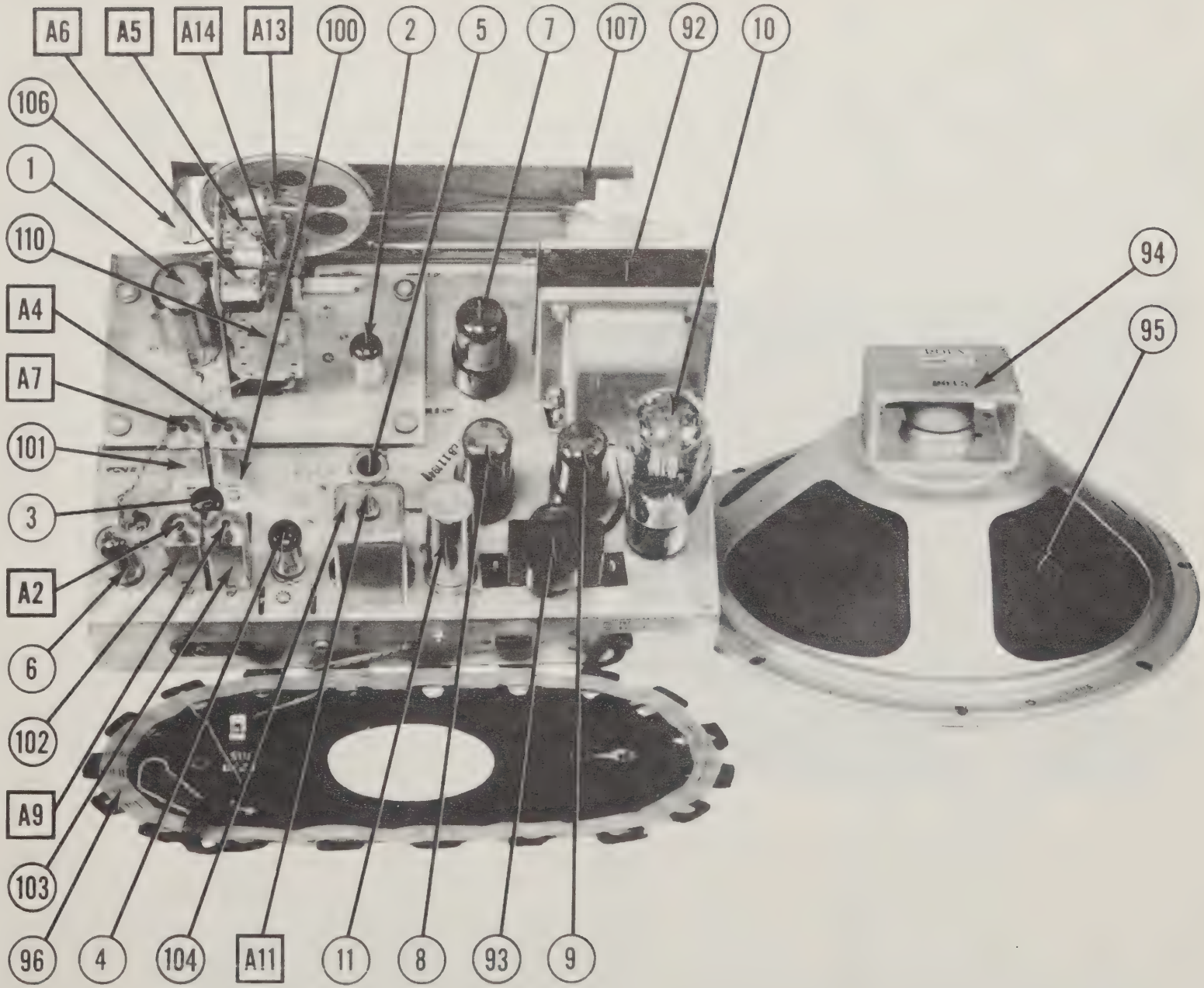
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PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM Conv.	7F8	7F8	8BW	
2	AM Conv.	6BE6	6BE6	7CH	
3	AM-FM 1st IF Amp	6BA6	6BA6	7BK	
4	FM 2nd IF Amp.	6BA6	6BA6	7BK	
5	Ratio Det.	6AL5	6AL5	6BT	
6	AM Det.-AVC-AF	6AT6	6AT6	7BT	
7	Tone Amp.-Phase Inv.	6SN7GT	6SN7GT	8BD	
8	Power Output	6K6GT	6K6GT	7S	
9	" "	6K6GT	6K6GT	7S	
10	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HOFFMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
11A	20	450	4200	AF44J4A	UP2245C	DY-312	EL-350	■ Filter
B	20	450						▲ "
C	20	25						Cathode Bypass
12	10	450	4203	PRS450/10	BR1045	M-10-450	UT-12	Decoupling
13	5	50	4209		BR550		TA-55	Stabilizing Cap.
14	.01	600	4103	684-01	DT6S1	ST-6-01	TC-10	Line Filter
15	.01	600	4103	684-01	DT6S1	ST-6-01	TC-11	" "
16	.002	600	4118	684-002	DT6D2	ST-6-002	TC-22	Output Plate Bypass
17	.05	400	4101	484-05	DT4S5	ST-4-05	TC-15	Audio Coupling
18	.05	400	4101	484-05	DT4S5	ST-4-05	TC-15	" "
19	.05	200	4100	484-05	DT4S5	ST-4-05	TC-15	Feedback
20	.01	600	4103	684-01	DT6S1	ST-6-01	TC-11	Audio Coupling
21	.02	400	4106	484-02	DT4S2	ST-4-02	TC-12	Tone Compensation
22	.005	600	4102	684-005	DT6D5	ST-6-005	TC-25	" "
23	.01	600	4103	684-01	DT6S1	ST-6-01	TC-11	Audio Coupling
24	.01	400	4112	484-01	DT4S1	ST-4-01	TC-11	1st IF Screen Bypass
25	.01	600	4103	684-01	DT6S1	ST-6-01	TC-11	1st IF Decoupling
26	.006	600		684-006	DT6D6	ST-6-006	TC-26	De-emphasis
27	.05	400	4101	484-05	DT4S5	ST-4-05	TC-15	1st Audio Plate Decoup
28	.01	600	4103	684-01	DT6S1	ST-6-01	TC-11	AM Conv. Screen Byp.
29	.02	400	4106	484-02	DT4S2	ST-4-02	TC-12	AM Conv. Decoupling
30	.05	400	4101	484-05	DT4S5	ST-4-05	TC-15	AVC Filter
31	.05	200	4100	484-05	DT2S5	ST-4-05	TC-15	" "
32	270	500	4001	1469-00025	5R5T25	MOS.5-325	MS-215	Diode Load Cap.-Note 1
33	270	500	4001	1469-00025	5R5T25	MOS.5-325	MS-325	" " " " "
34	270	500	4001	1468-00025	5W5T25	MO.5-325	1FM-325	RF Bypass
35	1000	300		1467-001	1W5D1	MO.3-21	1FM-21	2nd IF Screen Bypass
36	5000	300		1467-005	1D5D5	MW.5-25	1FM-25	2nd IF Decoupling
37	100	500		1468-0001	5W5T1	MO.5-31	1FM-31	AM Diode RF Filter
38	10	300		1468-00001	5W5Q1	MO.5-41	1FM-41	FM Conv. Plate Bypass
39	5000	300		1467-005	1D5D5	MW.5-25	1FM-25	FM Conv. Plate Decoup.
40	1000	300		1467-001	1W5D1	MO.3-21	1FM-21	FM Conv. Cath. Byp.
41	1000	300		1467-001	1W5D1	MO.3-21	1FM-21	FM Osc. Feedback
42	1000	300		1467-001	1W5D1	MO.3-21	1FM-21	Fil. Bypass
43	22	300	4021	1469-000025	5R5Q25	MOS.5-425	MS-425	FM Osc. Grid
44	5	300		1469-000005	5R5V5	MOS.5-55	MS-55	Fixed Trimmer
45	100	500		1469-0001	5R5T1	MOS.5-31	MS-31	AM Osc. Grid Cap.
46	470	500		1468-0005	5W5T5	MO.5-35	1FM-35	Tone Comp.
47	1.5	300		1468-000001				Osc. Coupling-Note 2

Note 1-When either Item #32 or #33 are replaced, replace both with capacitors of equal value.
Note 2-Not used in all models.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
93	12700Ω CT	4.0Ω	820Ω CT	.4Ω	5111	A-3823	T22S87	A-2936	

SPEAKER

ITEM No.	RATINGS: FIELD	RATINGS: VC IMP.	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
94A	PM	4.0Ω	9015	ST-102†	12A6†	†Replace output transformer to match 6-8Ω voice coil.
B	1500Ω		9005	Mod. P12-S		
	CONE DIA.	VC DIA.				
95	11-7/16"	1"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: MEISSNER PART No.
96	Loop Ant.	0Ω	.8Ω	5279	
97A	FM Ant.Pri.	0Ω		5281	
B	FM Ant.Sec.		0Ω	5283	
98	Osc.Coil AM		5.1Ω	5282	14-1060
99	" " FM		0Ω	5280	
100	1st IF AM	12Ω	12Ω	5276	
101	1st IF FM	1Ω	.4Ω	5274	
102	2nd IF AM	12Ω	12Ω	5277	
103	2nd IF FM	1.2Ω	.4Ω	5275	
104	FM Det.Tran.	1.9Ω	.1Ω	5278	
105	Fil. Choke		0Ω	5266	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
106	Bayonet	6-8	0.25	Blue			Type #44
107	"	"	"	"			" "

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: HOFFMAN PART No.	REPLACEMENT DATA: ASTATIC PART No.	REMARKS
108		L-71-A	L-71 Original Part

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
109	Switch		AM-FM-Phono
110	Tuning Gang	4409	AM (23-508MMF, 35-208MMF)
A5	Trimmer	4313	BC Osc. Adj.
A6	"	4313	BC Ant. Adj.
A13	"	4308	FM Osc. Adj.
A14	"	4308	FM Ant. Adj.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	HOFFMAN PART No.	IRC PART No.	CLAROSTAT PART No.	
48A	500KΩ	½	4804	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 48A per instructions
49A	250KΩ	½	4805	D13-130	M-64-Z	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 49A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HOFFMAN PART No.	IRC PART No.	
50	68Ω	½	4524		Blue-Gray-Blk. FM Conv. Cathode
51	1200Ω	½	4553	BTS-1200	Br.-Red-Red FM Conv. Cathode
52	1500Ω	½	4534	BTS-1500	Br.-Grn.-Red FM Conv. Plate Decoup.
53	22KΩ	½	4501	BTS-22K	Red-Red-Or. FM Osc. Grid
54	1500Ω	½	4553	BTS-1500	Br.-Grn.-Red FM Conv. Plate Load
55	22KΩ	½	4501	BTS-22K	Red-Red-Or. AM Osc. Grid
56	15KΩ	1	4539	BTA-15K	Br.-Grn.-Or. AM Conv. Screen
57	2200Ω	½		BTS-2200	Red-Red-Red AM Conv. Decoupling
58	22Ω	½	4560		Red-Red-Blk. Parasitic Suppressor
59	68Ω	½	4524		Blue-Gray-Blk. 1st IF Cathode
60	33KΩ	1	4556	BTA-33K	Or.-Or.-Or. 1st IF Screen
61	1500Ω	½	4534	BTS-1500	Br.-Grn.-Red 1st IF Decoup.
62	2200Ω	1	4540	BTA-2200	Red-Red-Red Voltage Dropping
63	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode Filter-See Note 5
64	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Diode Load-See Note 5
65	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
66	68Ω	½	4524		Blue-Gray-Blk. 2nd IF Cathode
67	33KΩ	1	4556	BTA-33K	Or.-Or.-Or. 2nd IF Screen
68	1500Ω	½	4534	BTS-1500	Br.-Grn.-Red 2nd IF Decoupling
69	120Ω	½	4546		Br.-Red-Br. RF Filter
70	22KΩ	½	4501	BTS-22K	Red-Red-Or. De-emphasis
71	390Ω	½	4549		Or.-White-Br. Neutralizing
72	390Ω	½	4549		Or.-White-Br. "
73	6800Ω	½	4557	BTS-6800	Blue-Gray-Red Ratio Det. Diode Load
74	6800Ω	½	4557	BTS-6800	Blue-Gray-Red " " " "
75	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
76	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Phono Shunt-See Note 4
77	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. Phono Tone Compensation
78	2.2 Meg.	½	4502	BTS-2.2 Meg.	Red-Red-Grn. AF Grid
79	220KΩ	½	4500	BTS-220K	Red-Red-Yl. AF Plate Load
80	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Tone Amp. Grid-See Note 3
81	220KΩ	½	4500	BTS-220K	Red-Red-Yl. Tone Amp. Plate Load
82	2200Ω	½	4512	BTS-2200	Red-Red-Red Tone Amp. Cathode
83	5 Meg.	½		BTS-4.7 Meg.	Grn.-Blk.-Grn. Phase Inv. Grid-See Note 1
84	47KΩ	½	4559	BTS-47K	Yl.-Vi.-Or. Phase Inv. Plate Load
85	47KΩ	½	4559	BTS-47K	Yl.-Vi.-Or. Phase Inv. Cathode
86	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. Output Grid
87	470KΩ	½	4506	BTS-470K	Yl.-Vi.-Yl. " "
88	400Ω	2		BW-2-390	Yl.-Blk.-Br. Output Cathode
89	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Decoup.-See Note 1
90	4700Ω	½	4543	BTS-4700	Yl.-Vi.-Red Feedback
91	1500Ω	10		AB-1500	Filter-See Note 2

Note 1-Not used in all models. Note 2-Used only with PM speaker.
Note 3-Some models use 1 Meg. in this application. Note 4-Some models use 220KΩ in this application
Note 5-Some models use 100K in this application.

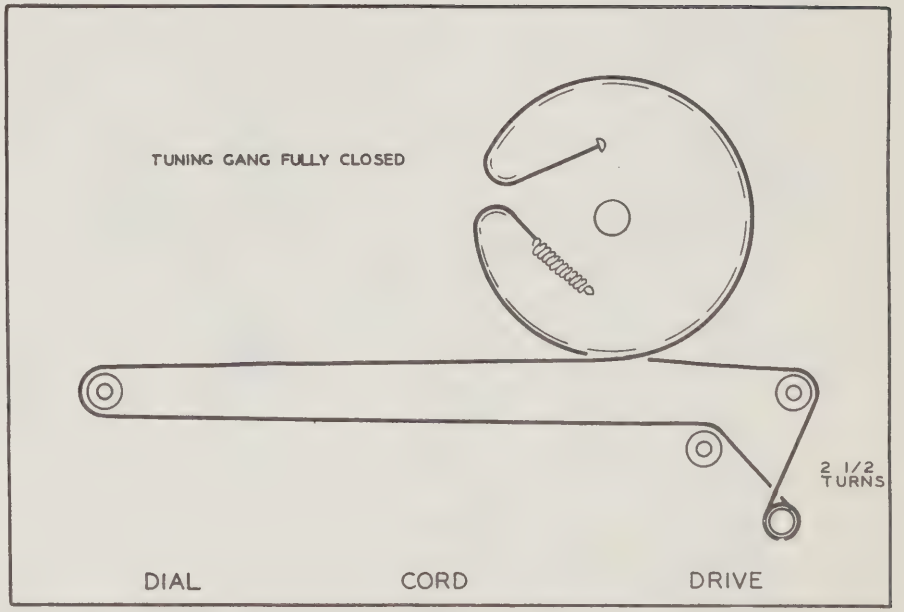
TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	HOFFMAN PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
92	117V AC @ .75A	620V CT .092A DC	5.1V AC @ 3.0A	6.4V AC @ 3.55A	5001	P-4079*	T22R32*	P-3155#*

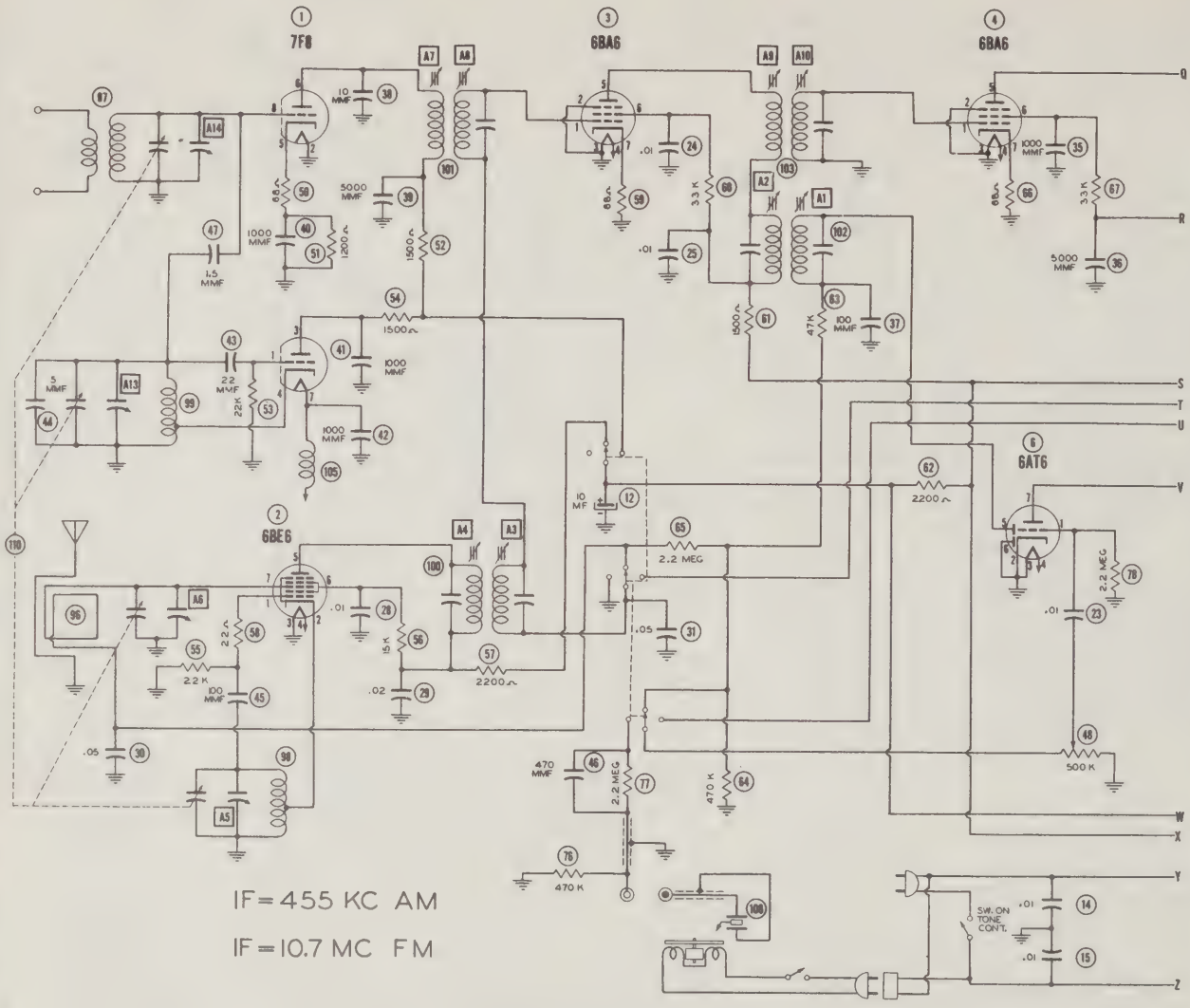
#Drill new mounting hole. *Add series resistor to reduce plate voltage.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove FM antenna leads from terminal strip at rear of chassis.
3. Remove phono-pickup plug and phono-motor plug from chassis.
4. Unsolder speaker leads from speaker.
5. Remove four machine screws holding chassis in cabinet.
6. Remove two wood screws holding loop antenna in cabinet. Remove chassis and loop from cabinet.
7. Remove four machines screws holding speaker in cabinet. Remove speaker from cabinet.



DATE 11/48-#4819-10 SET #68-FOLDER #10



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RADIO-PHONO SWITCH IN RADIO POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	7F8	-2VDC§	0V.	220VDC	0V.	6.8VDC	225VDC	6.4VAC	0V.
2	6BE6	-3.8VDC§	0V.	0V.	6.4VAC	265VDC	55VDC	0V.	-
3	6BA6	0V.	0V.	0V.	6.4VAC	235VDC	95VDC	1.2VDC	-
‡ 4	6BA6	0V.	0V.	0V.	6.4VAC	240VDC	95VDC	1VDC	-
‡ 5	6AL5	-.4VDC	-.4VDC	0V.	6.4VAC	0V.	0V.	0V.	-
6	6AT6	-.4VDC	0V.	0V.	6.4VAC	-04VDC	0V.	50VDC	-
7	6BN7GT	0V.	55VDC	2.2VDC	30VDC	170VDC	60VDC	6.4VAC	0V.
8	6K6GT	0V.	6.4VAC	320VDC	250VDC	0V.	0V.	0V.	21VDC
9	6K6GT	0V.	6.4VAC	320VDC	250VDC	0V.	0V.	0V.	21VDC
10	5U4G	0V.	320VDC	0V.	310VAC	0V.	310VAC	0V.	320VDC

‡TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	7F8	22KΩ	0Ω	75KΩ	0Ω	1.5MΩ	75KΩ	.1Ω	0Ω
2	6BE6	22KΩ	1Ω	0Ω	.1Ω	75KΩ	1.0MΩ	2.7 Meg.	-
3	6BA6	2.7 Meg.	0Ω	0Ω	.1Ω	75KΩ	100KΩ	6MΩ	-
‡ 4	6BA6	.4Ω	0Ω	0Ω	.1Ω	75KΩ	100KΩ	6MΩ	-
‡ 5	6AL5	7KΩ	7KΩ	0Ω	.1Ω	520KΩ	0Ω	520KΩ	-
6	6AT6	2.2 Meg.	0Ω	0Ω	.1Ω	520KΩ	0Ω	550KΩ	-
7	6BN7GT	470KΩ	300KΩ	2.2KΩ	5.5 Meg.	1.0MΩ	47KΩ	.1Ω	0Ω
8	6K6GT	INF.	.1Ω	70KΩ	70KΩ	470KΩ	47KΩ	0Ω	400Ω
9	6K6GT	INF.	.1Ω	70KΩ	70KΩ	470KΩ	INF.	0Ω	400Ω
10	5U4G	INF.	70KΩ	INF.	95Ω	INF.	90Ω	INF.	70KΩ

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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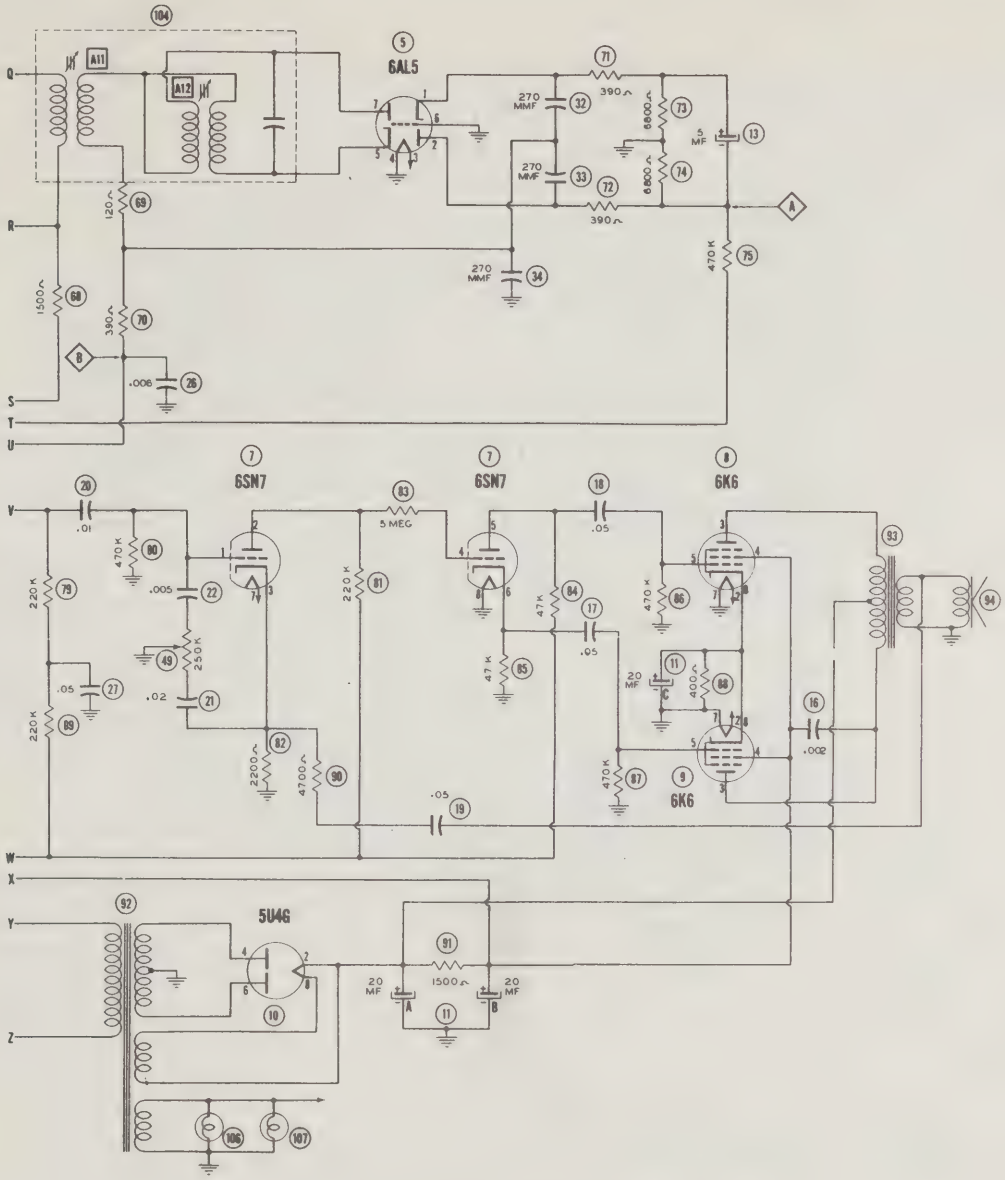

STAGE GAIN MEASUREMENTS		
ANTENNA TO CONVERTER GRID	1X	600KC
CONVERSION GAIN	30X	IN 600KC OUT 455KC
INPUT IF TRANSFORMER	.0X	455KC
IF TUBE	150X	455KC
OUTPUT IF TRANSFORMER	.6X	455KC
AUDIO	30X	400 ∿
TONE AMP.	6X	400 ∿
PHASE INVERTER	.6X	400 ∿
OUTPUT	15X	400 ∿

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

AM Alignment should be completed before FM Alignment is attempted.
Use an insulated alignment screwdriver for all adjustments.
To set dial pointer turn tuning cap. fully open and set pointer 2-3/8" from top right hand edge of dial backplate. This is the calibration mark referred to in Steps below.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear AM stator of tuning cap. Low side to chassis.	455KC	AM (center)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output.
2	Direct	High side to ext. AM ant. terminal. Low side to chassis.	1650KC	"	"	"	A5	" " " "
3	Direct	"	1400KC	"	Tune for maximum output.	"	A6	" " " "
4	Direct	"	600KC	"	"	"		Bend rotor plates of tuning cap. for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5	Direct	Each side to one FM antenna terminal.	10.7MC (Unmodulated)	FM (Clockwise)	Tuning cap. fully open.	DC probe to Point (A). Common to chassis.	A7,A8 A9,A10 A11	Solder a 5000Ω carbon resistor across secondary of 1st FM IF Transformer (101). Solder another 5000Ω carbon resistor across secondary of 2nd FM IF Transformer (103). Adjust A7 thru A11 for maximum deflection. Attenuate output of sig. gen. to maintain meter reading between .5 & 1 volt.
6	Direct	"	"	"	"	DC probe to Point (B). Common to chassis.	A12	Adjust for zero deflection. Remove the two 5000Ω resistors. Continue with FM-RF alignment in Step 8.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5	.01 MFD.	High side to Pin 1 (grid) of 6BA6 1st IF tube (3). Low side to chassis.	10.7MC (Freq. Modulated)	FM (Clockwise)	Tuning cap. fully open.	Vertical input to Point (A). Ground to chassis.	A11, A10, A9	Disconnect 5 MFD cap. (13) from Point (A). Adjust A11, A10 & A9 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
6	.01 MFD.	High side to Pin 8 (grid) of 7F8. Low side to chassis.	"	"	"	"	A8,A7	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect cap. (13) to Point (A).
7	.01 MFD	High side to Pin 1 (grid) of 6BA6 1st IF Tube (3). Low side to chassis.	"	"	"	Vertical input to Point (B). Ground to chassis.	A12	Adjust for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. Continue with FM-RF Alignment in Step 8.

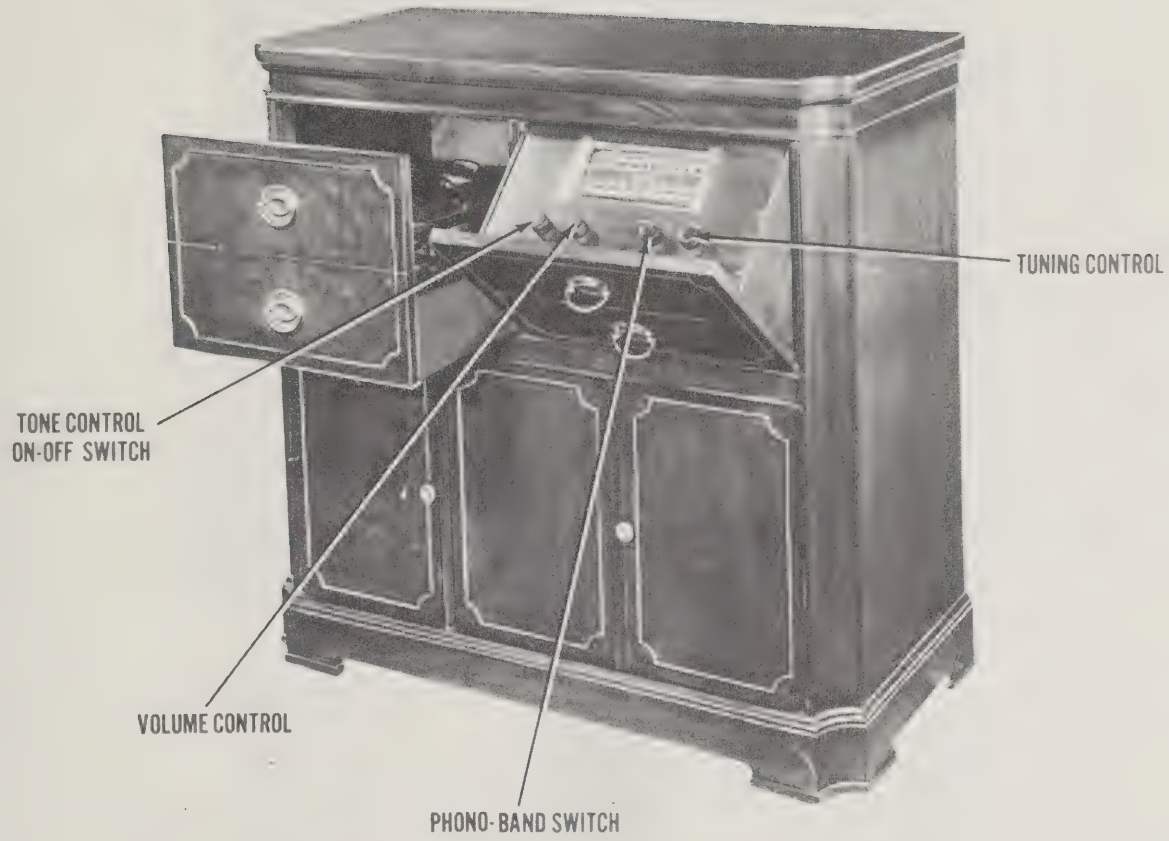
FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8	2-150Ω carbon res.	Each side in series with 150Ω to FM ant. terminals.	107MC (Unmodulated)	FM	3/4" from calibration mark.	DC probe to Point (A). Common to chassis	A13	Adjust for maximum deflection.
9	"	"	"	"	Tune for maximum deflection.	"	A14	Rock tuning cap. and adjust for maximum deflection.
10	"	"	90MC	"	"	"		Bend rotor plates of tuning cap. for maximum deflection. Repeat Steps 8,9&10 until no further improvement can be made.

FIG. 1

FIG. 2

LEARADIO MODEL
1281-PC (Ch. 7B)



LEARADIO MODEL
1281-PC (Ch. 7B)

LEARADIO MODEL 1281-PC

TRADE NAME	Learadio, Model 1281-PC (Ch. 7B)		
MANUFACTURER	Lear, Inc. 110 Ionia Ave., N.W. Grand Rapids 2, Michigan		
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver		
TUBES (TWELVE)	Types, 6BA6 FM RF Amp., 7Q7 AM Converter, 7F8 FM Converter, 7AH7 1st IF Amp., 6SH7 FM 2nd IF, 7A6 FM Det., 6SC7 Phono Pre-Amp., 6SQ7GT AM Det.-AVC-AF, 7F7 2nd AF-Phase Inv., (2) 7C5 Power Output, 5Y3GT Rectifier.		
POWER SUPPLY	105-125 Volts AC	RATING	.8 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1700KC	FREQ. MOD.	88 - 108 MC

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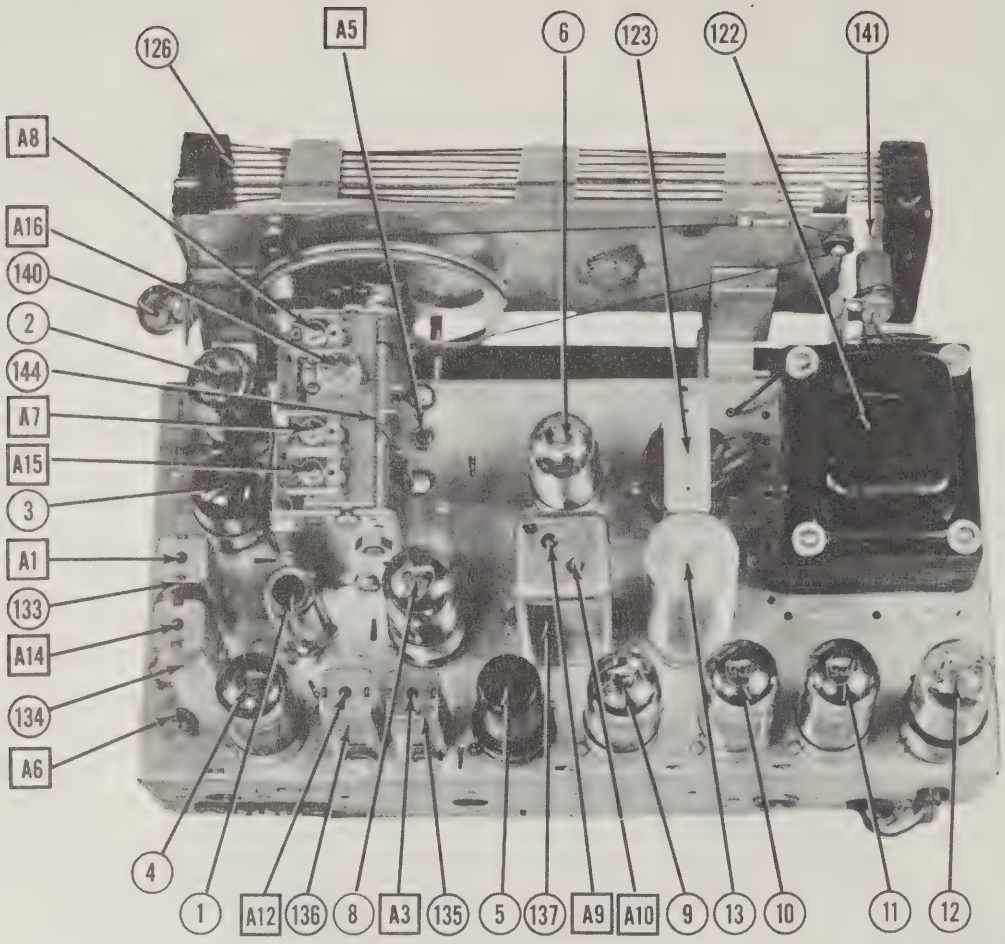
DATE 11/48-#4819-11 SET #49-FOLDER #11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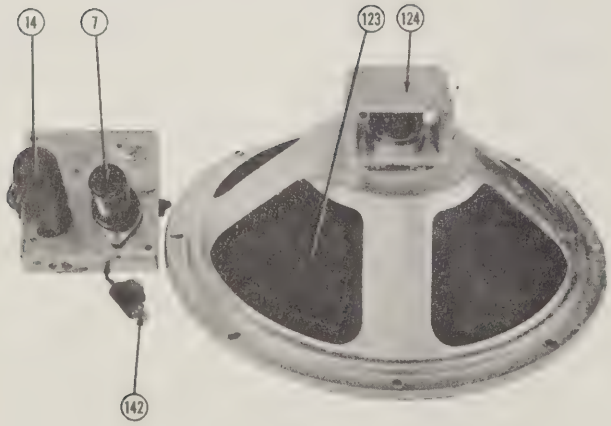
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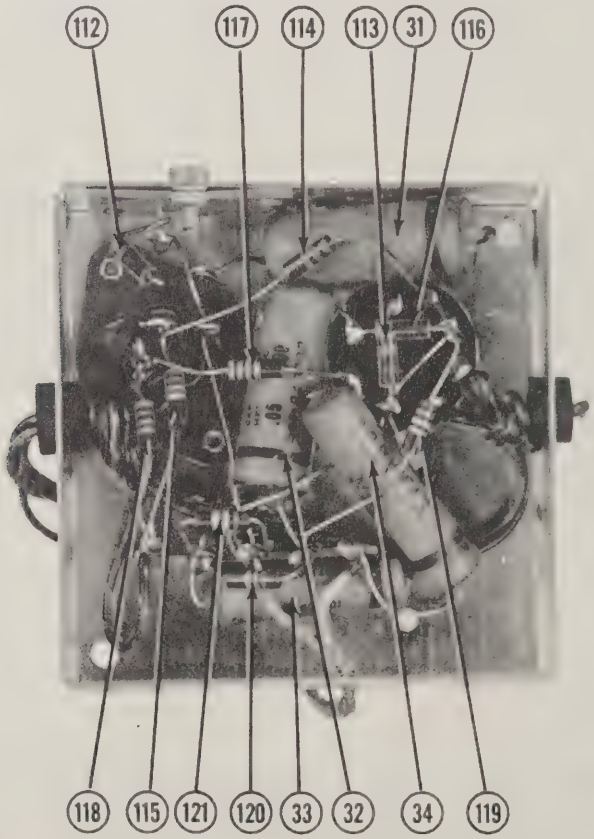
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A13
A2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	FM RF Amp.	6BA6	6BA6	7BK	
2	AM Converter	7Q7	7Q7	8AL	
3	FM Converter	7F8	7F8	8BW	
4	1st IF Amp.	7AH7	7AH7		
5	FM 2nd IF	6SH7	6SH7	8BK	
6	FM Det.	7A6	7A6	7AJ	
7	Phono Pre-Amp.	6SC7	6SC7	8S	
8	AM Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
9	2nd AF-Phase Inv	7F7	7F7	8AC	
10	Power Output	7C5	7C5	6AA	
11	" "	7C5	7C5	6AA	
12	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
13A	40	450		AF88J	UP4445	DY-2x40-450	EL-240	▲ Filter
B	40	450						▲ "
14A	40	150		AF88D	UP4315	DY-4030-150	EL-35	▲ Pre-Amp. Decoupling
B	30	150						■ " "
15	4	250		PRS450/4	BR425	M-4-450	UT-42	Stabilizing Cap.
16	8	450		PRS450/8	BR845	M-8-450	UT-8	Decoupling
17	.05	400		484-05	DT4S5	MPH-4-05	TC-15	Line Filter
18	.05	400		484-05	DT4S5	MPH-4-05	TC-15	" "
19	.002	600		684-002	DT6D2	ST-6-002	TC-22	Output Plate Bypass
20	.002	600		684-002	DT6D2	ST-6-002	TC-22	" " "
21	.05	400		484-05	DT4S5	ST-4-05	TC-15	Audio Coupling
22	.05	400		484-05	DT4S5	ST-4-05	TC-15	" "
23	.05	200		484-05	DT2S5	ST-4-05	TC-15	" "
24	.02	200		484-02	DT2S2	ST-4-02	TC-12	Tone Compensation
25	.05	200		484-05	DT2S5	ST-4-05	TC-15	Audio Coupling
26	.5	200		484-.5	DT2P5	ST-2-.5	TC-5	Delayed AVC Filter
27	.01	150		484-01	DT2S1	ST-4-01	TC-11	2nd IF Cathode Bypass
28	.1	200		484-.1	DT2P1	ST-2-1	TC-1	AVC Filter
29	.05	400		484-05	DT4S5	ST-4-05	TC-15	RF Bypass Pwr. Supply
30	.01	400		484-01	DT4S1	ST-4-01	TC-11	AM Conv. Decoupling
31	.05	600		684-05	DT6S5	ST-6-05	TC-15	Audio Coupling
32	.05	600		684-05	DT6S5	ST-6-05	TC-15	" "
33	.01	600		684-01	DT6S1	ST-6-01	TC-11	Tone Compensation
34	.02	600		684-02	DT6S2	ST-6-02	TC-12	Audio Coupling
35	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	Tone Compensation
36	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	" "
37	6800	300		1467-006	1D3D7	MW.3-27	1FM-27	" "
38	6800	300		1467-006	1D3D7	MW.3-27	1FM-27	Audio Coupling
39	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	RF Bypass-Cer.
40	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	Diode Load Cap.
41	3000	300		1467-003	1W5D3	MW.5-23	1FM-23	De-emphasis-Cer.
42	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	2nd IF Plate Decoup.-Cer.
43	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	2nd IF Screen Byp.-Cer.
44	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	2nd IF Grid Filter-Cer.
45	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	Diode RF Filter-Cer.
46	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	" " " "
47	6800	300		1467-006	1D3D7	MW.3-27	1FM-27	1st IF Decoupling
48	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	1st IF Cath. Byp.-Cer.
49	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	FM Conv. Plate Decoup.-Cer.
50	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	FM Osc. Plate Decoup.-"
51	25	500		1468-000025	5W5Q25	MO.5-425	MS-425	FM Osc. Grid Cap.
52	2	300						Osc. Coupling-Cer.
53	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	FM Conv. Cathode Byp.-Cer.
54	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	RF Coupling-Cer.
55	47	300		1468-00005	5W5Q5	MO.5-45	1FM-45	" " "
56	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	RF Byp. Power Supply-Cer.
57	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	FM RF Screen Byp.-Cer.
58	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	FM RF Cathode Byp.-Cer.
59	470	500		1468-0005	5W5T5	MO.5-35	1FM-35	RF Coupling
60	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	Filament Bypass-Cer.
61	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	" " "
62	1500	300		1467-0015	1W5D15	MW.5-215	1FM-215	" " "

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
122	117V AC	660V CT @ .8A	5.0V AC .104A DC	6.3V AC @ 2.0A @ 3.5A	ZA-18.053	P-6013#	T-22R05*	P-2953#

#Add series resistor to reduce plate voltage. *Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
123	4000Ω CT	3.6Ω	540Ω	.4Ω	ZA-15.019	A-3831	T32887	A-2901	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
	FIELD RES. VC IMP.				
124	PM 6.4Ω		ST-102 Mod. P12-8	12A6	
	CONE DIA. VC DIA.				
125	11-3/8" 1"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA: MEISSNER PART No.
126	BC Loop Ant.		1.5Ω	LC-5.018	
127	FM Di-pole		0Ω	LA-5.010	
128	BC Ant.Coil		2.2Ω	LA-2.273	
129	FM Ant. "	0Ω	0Ω	LA-2.241	
130	FM RF "		0Ω	LA-2.243	
131	BC Osc. "	.3Ω	5.5Ω	LA-2.221	
132	FM " "	0Ω	0Ω	LA-2.222	
133	AM 1st IF	16Ω	16Ω	ZB-2.275	16-6678
134	FM 1st IF	.7Ω	.7Ω	ZB-2.276	
135	AM 2nd IF	16Ω	16Ω	ZB-2.275	16-6678
136	FM " "	.7Ω	.7Ω	ZB-2.276	
137	FM Det.Trans	.8Ω	.2Ω	ZC-2.278	
138	RF Plate Choke		.5Ω	LA-2.279	
139	Conv. RF Choke		.1Ω	LA-2.242	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: LEARADIO PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
140-142	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	LEARADIO PART No.	NOTES
143	Switch	SA-12060	Band-Phono
144	Tuning Gang	C-6042	AM (50-500MMF, 50-500MMF)

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA LEARADIO PART No.	REPLACEMENT DATA IRC PART No.	REPLACEMENT DATA CLAROSTAT PART No.	INSTALLATION NOTES
63A	500KΩ	½	RA-9.069	D18-133X	T-88	Volume Control tapped @ 50KΩ
B	Shaft		Not Req.	A	Not Req.	Attach to 63A per instructions
64A	1 Meg.	½	RA-9.070	D13-137	M-63-Z	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 64A per instructions
C	Switch		" "	41	SW-A	" " " " "

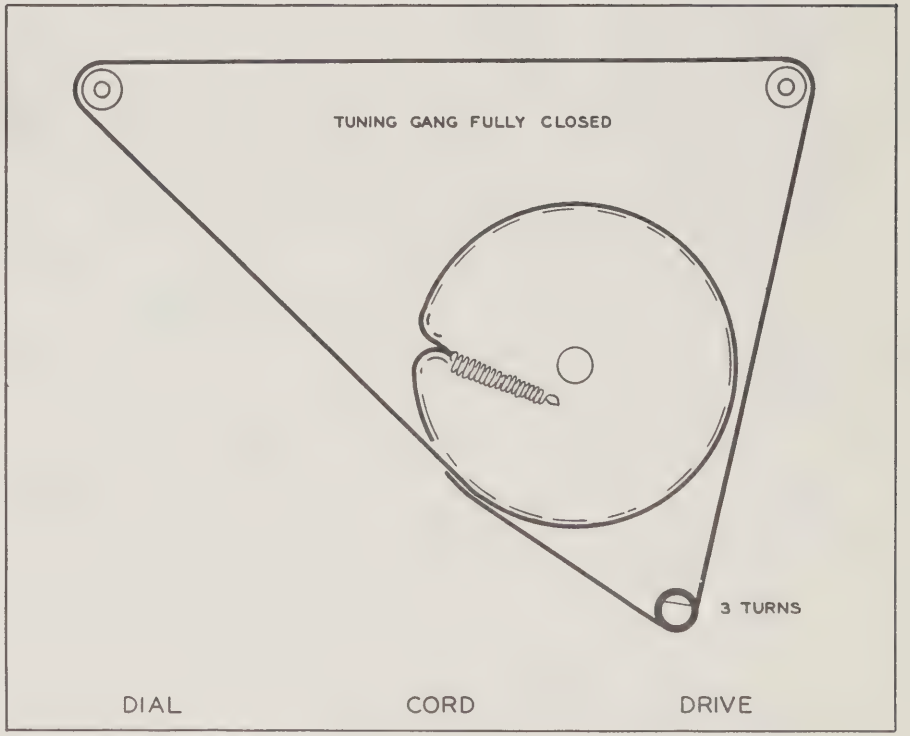
RESISTORS

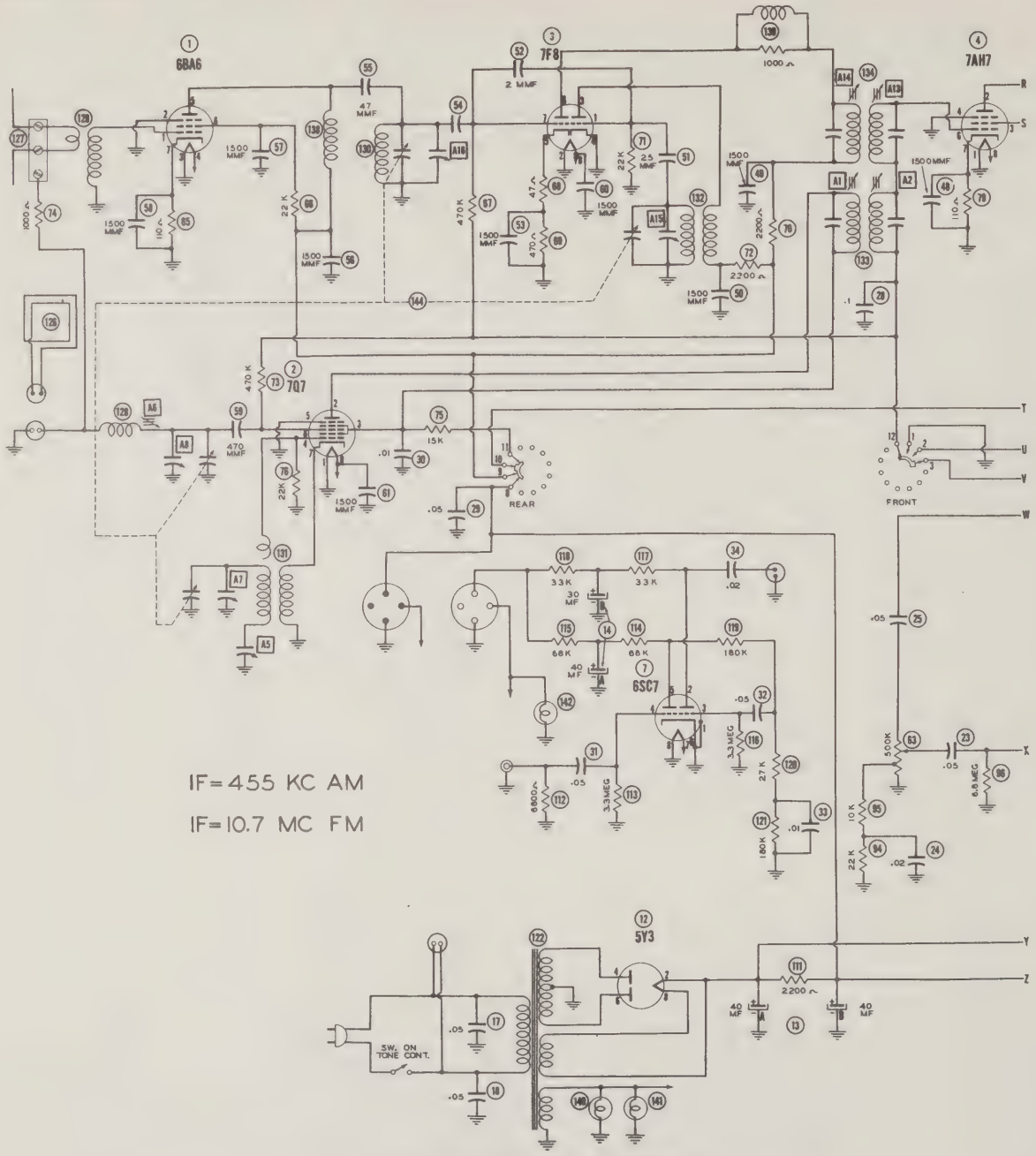
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA LEARADIO PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
65	110Ω	½			Br.-Br.-Br. RF Cathode
66	22KΩ	½		BTS-22K	Red-Red-Or. RF Screen
67	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. FM Conv. Grid
68	47Ω	½			Yl.-Vi.-Blk. FM Conv. Cathode
69	470Ω	½		BTS-470	Yl.-Vi.-Br. FM Conv. Cathode
70	2200Ω	½		BTS-2200	Red-Red-Red FM Conv. Plate Decoupling
71	22KΩ	½		BTS-22K	Red-Red-Or. FM Osc. Grid
72	2200Ω	½		BTS-2200	Red-Red-Red FM Osc. Plate Decoupling
73	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AM Conv. Grid
74	1000Ω	½		BTS-1000	Br.-Blk.-Red Ant. Loading
75	15KΩ	2		BT-2-15K	Br.-Grn.-Or. AM Conv. Decoupling
76	22KΩ	½		BTS-22K	Red-Red-Or. AM Osc. Grid
77	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
78	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. " "
79	110Ω	½			Br.-Br.-Br. 1st IF Cathode
80	2200Ω	½		BTS-2200	Red-Red-Red 1st IF Decoupling
81	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode Filter
82	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Diode Load
83	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
84	220KΩ	½		BTS-220K	Red-Red-Yl. 2nd IF Grid
85	110Ω	½			Br.-Br.-Br. 2nd IF Cathode
86	20KΩ	½		BTS-22K	Red-Blk.-Or. 2nd IF Screen
87	1000Ω	½		BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
88	22KΩ	½		BTS-22K	Red-Red-Or. De-emphasis
89	10KΩ	½		BTS-10K	Br.-Blk.-Or. Ratio-Det. Diode Load
90	10KΩ	½		BTS-10K	Br.-Blk.-Or. " " " "
91	220KΩ	½		BTS-220K	Red-Red-Yl. AVC Network
92	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Bias Network
93	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Network
94	22KΩ	½		BTS-22K	Red-Red-Or. Tone Compensation
95	10KΩ	½		BTS-10K	Br.-Blk.-Or. " "
96	6.8 Meg.	½		BTS-6.8 Meg.	Blue-Gray-Grn. 1st AF Grid
97	220KΩ	½		BTS-220K	Red-Red-Yl. 1st AF Plate Load
98	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Tone Comp.-See Note
99	220KΩ	½		BTS-220K	Red-Red-Yl. 2nd AF Grid
100	2200Ω	½		BTS-2200	Red-Red-Red 2nd AF Cathode
101	10Ω	½		BW-½-10	Br.-Blk.-Blk. 2nd AF Cathode
102	220KΩ	½		BTS-220K	Red-Red-Yl. 2nd AF Plate Load
103	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inv. Plate
104	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inv. Cathode
105	47OKΩ	½		BTS-470K	Yl.-Vi.-Yl. Phase Inv. Grid
106	2200Ω	½		BTS-2200	Red-Red-Red Decoupling
107	220KΩ	½		BTS-220K	Red-Red-Yl. Output Grid
108	220KΩ	½		BTS-220K	Red-Red-Yl. " "
109	200Ω	2		BW-2-200	Red-Blk.-Br. Output Cathode
110	110Ω	½		BW-½-100	Br.-Br.-Br. Feedback
111	2200Ω	10		AB-2250	Filter
112	6800Ω	½		BTS-6800	Blue-Gray-Red Phono Shunt
113	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. 1st Pre-Amp. Grid
114	68KΩ	½		BTS-68K	Blue-Gray-Or. 1st Pre-Amp. Plate Load
115	68KΩ	½		BTS-68K	Blue-Gray-Or. 1st Pre-Amp. Plate Decoup.
116	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. 2nd Pre-Amp. Grid
117	33KΩ	½		BTS-33K	Or.-Or.-Or. 2nd Pre-Amp. Plate Load
118	33KΩ	½		BTS-33K	Or.-Or.-Or. 2nd Pre-Amp. Plate Decoup.
119	180KΩ	½		BTS-180K	Br.-Gray-Yl. Tone Comp.
120	27KΩ	½		BTS-27K	Red-Vi.-Or. " "
121	180KΩ	½		BTS-180K	Br.-Gray-Yl. " "

Note-some models use two 100KΩ ½ watt resistors in series in this application.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove loop antenna plug from rear of chassis.
3. Remove FM dipole leads from terminal strip on rear of chassis.
4. Remove phono-input plug from tuning chassis.
5. Remove speaker plug from tuning chassis.
6. Disconnect phono pre-amp. power supply plug.
7. Remove pilot light from bracket at front of cabinet.
8. Remove phono-pickup plug from pre-amp. chassis.
9. Remove two hex nuts holding pre-amp. chassis in cabinet. Remove chassis from cabinet.
10. Remove eight wood screws holding control panel over front of chassis. Remove panel from cabinet.
11. Remove six wood screws holding chassis in cabinet. Remove chassis out rear of cabinet.
12. Remove two machine screws holding loop antenna in cabinet. Remove loop from cabinet.
13. Remove four wood screws holding speaker in cabinet. Remove speaker from cabinet.





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
RADIO-PHONO SWITCH IN PHONO POSITION

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	6BA6	0V.	0V.	0V.	6.3VAC	210VDC	110VDC	1.3VDC	-
2	7Q7	0V.	95VDC	95VDC	-10VDC§	0V.	-.3VDC	0V.	6.3VAC
‡ 3	7F8	-2.8VDC§	0V.	190VDC	0V.	1.9VDC	200VDC	6.3VAC	0V.
‡ 4	7AH7	0V.	190VDC	190VDC	0V.	0V.	0V.	1VDC	6.3VAC
‡ 5	6SH7	0V.	0V.	1.1VDC	0V.	1.1VDC	125VDC	6.3VAC	175VDC
‡ 6	6A6	0V.	2.5VDC	2.5VDC	.8VDC	0V.	2.5VDC	2.5VDC	6.3VAC
7	6SC7	0V.	140VDC	-.4VDC	-.4VDC	100VDC	0V.	6.3VAC	0V.
‡ 8	6SQ7GT	0V.	-.6VDC	0V.	-.3VDC	.9VDC	113VDC	0V.	6.3VAC
‡ 9	7F7	0V.	65VDC	120VDC	65VDC	0V.	65VDC	1VDC	6.3VAC
‡ 10	7C5	0V.	320VDC	210VDC	0V.	0V.	0V.	12VDC	6.3VAC
‡ 11	7C5	0V.	320VDC	210VDC	0V.	0V.	0V.	12VDC	6.3VAC
‡ 12	5Y3GT	0V.	330VDC	0V.	330VAC	0V.	330VAC	0V.	330VDC

‡TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	6BA6	0Ω	0Ω	0Ω	.1Ω	50KΩ	70KΩ	100Ω	-
2	7Q7	0Ω	65KΩ	65KΩ	22KΩ	0Ω	3 Meg.	.3Ω	.1Ω
‡ 3	7F8	22KΩ	0Ω	54KΩ	0Ω	520Ω	54KΩ	.1Ω	1 Meg.
‡ 4	7AH7	0Ω	54KΩ	54KΩ	0Ω	0Ω	540KΩ	100Ω	.1Ω
‡ 5	6SH7	0Ω	0Ω	100Ω	220KΩ	100Ω	70KΩ	.1Ω	52KΩ
‡ 6	6A6	0Ω	420KΩ	INF.	640KΩ	0Ω	42UKΩ	INF.	.1Ω
7	6SC7	0Ω	120KΩ	3.3 Meg.	3.3 Meg.	180KΩ	0Ω	.1Ω	0Ω
‡ 8	6SQ7GT	0Ω	6.8 Meg.	0Ω	520KΩ	640KΩ	270KΩ	0Ω	.1Ω
‡ 9	7F7	0Ω	100KΩ	150KΩ	170KΩ	220KΩ	170KΩ	2.2KΩ	.1Ω
‡ 10	7C5	0Ω	50KΩ	52KΩ	INF.	INF.	220KΩ	200Ω	.1Ω
‡ 11	7C5	0Ω	50KΩ	52KΩ	INF.	INF.	220KΩ	200Ω	.1Ω
‡ 12	5Y3GT	INF.	50KΩ	INF.	130Ω	INF.	130Ω	INF.	50KΩ

§ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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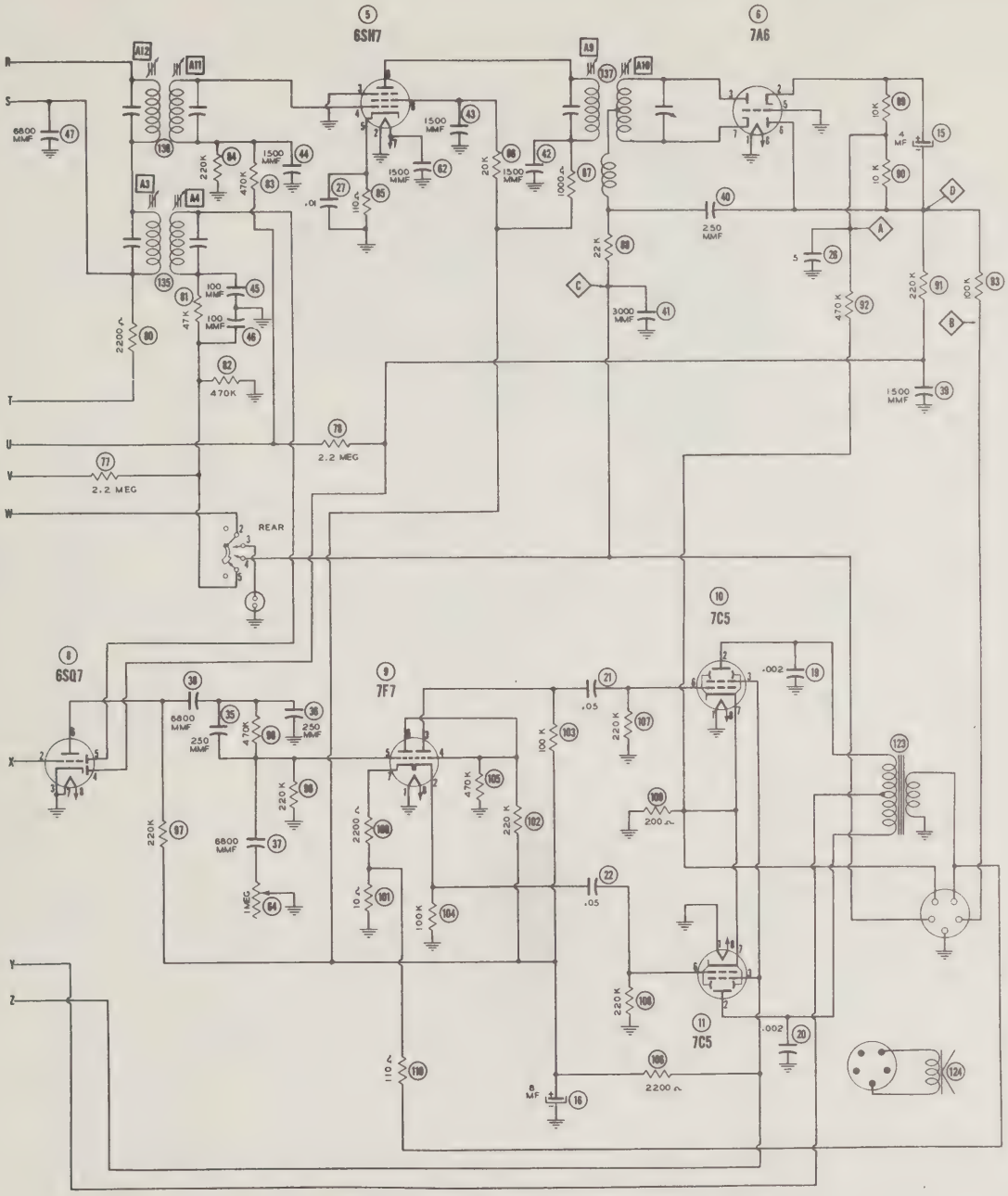

STAGE GAIN MEASUREMENTS			
CONVERSION GAIN	45X	IN OUT	600KC 455KC
INPUT IF TRANSFORMER	.7X		455KC
IF TUBE	220X		455KC
OUTPUT IF TRANSFORMER	.7X		455KC
1st AF	35X		400 ∿
2nd AF	10X		400 ∿
PHASE INVERTER	.6X		400 ∿
OUTPUT	30X		400 ∿
1st PHONO	20X		400 ∿
2nd PHONO	25X		400 ∿

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.
Use insulated alignment screwdriver for all adjustments.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to front AM stator of tuning cap. Low side to chassis.	455KC	AM (fully clock-wise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	200MMFD.	High side to ext ant. terminal. Low side to chassis.	600KC	"	600KC	"	A5,A6	" " " "
3	200MMFD.	"	1600KC	"	1600KC	"	A7	" " " "
4	200MMFD.	"	"	"	Tune for maximum output.	"	A8	Adjust for maximum output. Repeat Steps 2, 3 and 4 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR, VTVM & OUTPUT METER

In Step 6 after adjustment of A10 for zero deflection tune signal generator 200KC above 10.7MC and note meter reading. Then tune signal generator 200KC below 10.7MC and note the meter reading. These two readings should be about equal. If they are not then A9 should be readjusted until the two readings are approximately equal.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5	.01 MFD.	High side to Pin 4 (grid) of 6SH7. Low side to chassis.	10.7MC (Unmodulated)	FM (Center position)	Tuning cap. fully open.	DC probe to Point ⓓ. Common to Point Ⓐ.	A9	Adjust for maximum deflection.
6	.01 MFD.	"	"	"	"	DC probe to Point Ⓒ. Common to Point Ⓐ.	A10	Use a zero center scale VTVM if available and adjust for maximum output. Check linearity per pre-alignment notes.
						OUTPUT METER		
7	.01 MFD.	High side to Pin 6 (grid) of 7AH7. Low side to chassis.	10.7MC (400 ∿ 30% amplitude mod.)	"	"	Across voice coil	A11, A12	Connect 1000Ω carbon res. across primary of ratio detector transformer (122). Adjust A11 & A12 for maximum output.
8	.01 MFD.	High side to Pin 8 (grid) of 7F8. Low side to chassis.	"	"	"	"	A13, A14	Adjust for maximum output. Remove 1000Ω resistor. Continue with FM-RF Alignment in Step 9.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use freq. modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
5	.01 MFD.	High side to Pin 6 (grid) of 7AH7. Low side to chassis.	10.7MC (Freq. Mod.)	FM (center position)	Tuning cap. fully open.	Vertical input to Point ⓓ. Ground to Point Ⓐ.	A9,A11, A12	Disconnect .1 MFD cap. from Point ⓓ. Adjust A9, A11 & A12 for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
6	.01 MFD.	Disconnect cap. (48) from Pin 8 (grid) of 7F8. High side of sig gen. to Pin 8. Low side to chassis.	"	"	"	"	A13, A14	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1. Reconnect .1 MFD cap. to Point D and cap. (54) to Pin 8 of 7F8.
7	.01 MFD.	High side to Pin 6 (grid) of 7AH7. Low side to chassis.	"	"	"	Vertical input to Point Ⓒ. Ground to chassis.	A10	Adjust for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. Continue with FM-RF Alignment in Step 9.

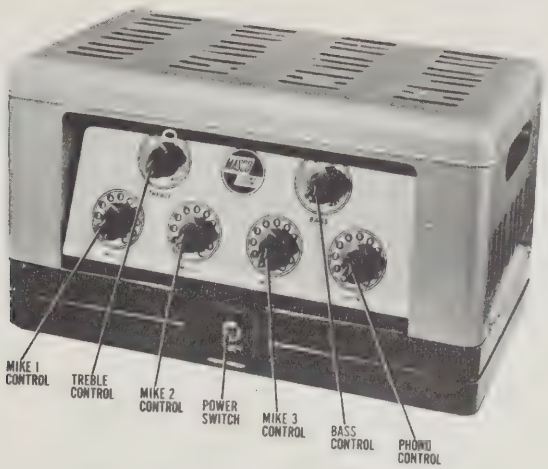
FIG. 1

FIG. 2

FM RF ALIGNMENT

Attenuate output of signal generator to maintain maximum meter deflection of 2 volts.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9	2 - 150Ω carbon res.	Each side to FM dipole terminal.	108MC (Unmodulated)	FM	108MC	DC probe to Point ⓓ. Common to Point Ⓐ.	A15	Adjust for maximum deflection.
10	"	"	"	"	Tune for maximum deflection.	"	A16	Adjust for maximum deflection. Repeat Steps 9 & 10 until no further improvement can be made.
11	"	"	90MC	"	"	"	FM-RF Coil (115)	Compress or expand turns slightly for maximum deflection. Repeat Steps 9,10 & 11 until no further improvement can be made.



MASCO MODEL MA-25NR

TRADE NAME	Masco, Model MA-25NR
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th St., Long Island City, N.Y.
TYPE SET	AC Operated 4 Channel Audio Amplifier with Provision For Remote Control
TUBES (NINE)	Types, 6J7 Mic. 1 Amp., 6J7 Mic. 2 Amp., 6J7 Mic. 3 Amp., 6SC7 Mixer, 6J7 AF Amp., 6SC7 AF-Phase Inv., (2) 6L6G Power Output, 5V4G Rectifier.
POWER SUPPLY	110-125 Volts AC RATING 1.14 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6J7	0V.	19VDC	65VDC	45VDC	2.6VDC	0V.	19VDC	2.6VDC	0V.
2	6J7	0V.	19VDC	65VDC	45VDC	2.6VDC	0V.	19VDC	2.6VDC	0V.
3	6J7	0V.	19VDC	19VDC	20VDC	0V.	0V.	19VDC	0V.	-.5VDC
4	6SC7	0V.	70VDC	0V.	0V.	70VDC	1.1VDC	19VDC	19VDC	-
5	6J7	0V.	19VDC	60VDC	60VDC	60VDC	0V.	19VDC	2.3VDC	0V.
6	6SC7	0V.	120VDC	0V.	0V.	120VDC	1.2VDC	19VDC	19VDC	-
7	6L6G	0V.	19VDC	360VDC	270VDC	0V.	220VDC	19VDC	19VDC	-
8	6L6G	0V.	19VDC	360VDC	270VDC	0V.	0V.	19VDC	19VDC	-
9	5V4G	0V.	370VDC	0V.	350VAC	0V.	350VAC	0V.	370VDC	-

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6J7	0Ω	210Ω	500KΩ	1.2 Meg.	1KΩ	INF.	210Ω	1KΩ	15 Meg.
2	6J7	0Ω	210Ω	500KΩ	1.2 Meg.	1KΩ	INF.	210Ω	1KΩ	470KΩ
3	6J7	0Ω	210Ω	350KΩ	1 Meg.	0Ω	INF.	210Ω	0Ω	470KΩ
4	6SC7	0Ω	240KΩ	140KΩ	140KΩ	240KΩ	2.2KΩ	210Ω	210Ω	-
5	6J7	0Ω	210Ω	140KΩ	140KΩ	140KΩ	INF.	210Ω	2.2KΩ	27KΩ
6	6SC7	0Ω	140KΩ	8.2KΩ	270KΩ	140KΩ	1KΩ	210Ω	210Ω	-
7	6L6G	0Ω	210Ω	12KΩ	9KΩ	280KΩ	15KΩ	210Ω	200Ω	-
8	6L6G	0Ω	210Ω	12KΩ	9KΩ	270KΩ	0Ω	210Ω	200Ω	-
9	5V4G	INF.	12KΩ	INF.	47Ω	INF.	52Ω	INF.	12KΩ	-

VOLTAGE BETWEEN FILAMENT PINS 6.4V AC.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

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PARTS LIST AND DESCRIPTIONS

MASCO
MODEL MA-25NR

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mic. 1 Amp.	6J7	6J7	7R	
2	Mic. 2 Amp.	6J7	6J7	7R	
3	Mic. 3 Amp.	6J7	6J7	7R	
4	Mixer	6SC7	6SC7	8S	
5	AF Amp.	6J7	6J7	7R	
6	AF-Phase Inv.	6SC7	6SC7	8S	
7	Power Output	6L6G	6L6G	7AC	
8	" "	6L6G	6L6G	7AC	
9	Rectifier	5V4G	5V4G	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
10	16	450		PRS450-16	BR1645	M-16-450	UT-16	Filter
11	16	450		PRS450-16	BR1645		UT-16	"
12A	8	450		PRSA450/8-8	EDL-8845	DH2x8-450	UT-88	Decoupling
B	8	450						"
13	8	450		PRS450-8	BR845	M-8-450	UT-8	"
14	8	450		PRS450-8	BR845	M-8-450	UT-8	"
15	8	450		PRS450-8	BR845	M-8-450	UT-8	"
16	8	450		PRS450-8	BR845	M-8-450	UT-8	"
17	50	50		PRS50-50	BR505	M-50-50	TA-550	Cathode Bypass
18	50	50		PRS50-50	BR505	M-50-50	TA-550	" "
19	50	50		PRS50-50	BR505	M-50-50	TA-550	" "
20	.1	600		684-.1	DT6P1	ST-6-1	TC-1	Audio Coupling
21	.1	600		684-.1	DT6P1	ST-6-1	TC-1	" "
22	.05	600		684-05	DT6S5	ST-6-05	TC-15	" "
23	.05	600		684-05	DT6S5	ST-6-05	TC-15	" "
24	.005	600		684-005	DT6D5	ST-6-005	TC-25	Tone Compensation
25	.01	600		684-01	DT6S1	ST-6-01	TC-11	Audio Coupling
26	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
27	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
28	.1	600		684-.1	DT6P1	ST-6-1	TC-1	Screen Bypass
29	.1	600		684-.1	DT6P1	ST-6-1	TC-1	" "
30	.1	600		684-.1	DT6P1	ST-6-1	TC-1	" "
31	.005	600		684-005	DT6D5	ST-6-005	TC-25	Audio Coupling
32	500	500		1468-0005	5W5T5	MO.5-35	1FM-35	AF Grid Bypass
33	500	500		1468-0005	5W5T5	MO.5-35	1FM-35	Tone Comp.
34	500	500		1468-0005	5W5T5	MO.5-35	1FM-35	Tone Comp.

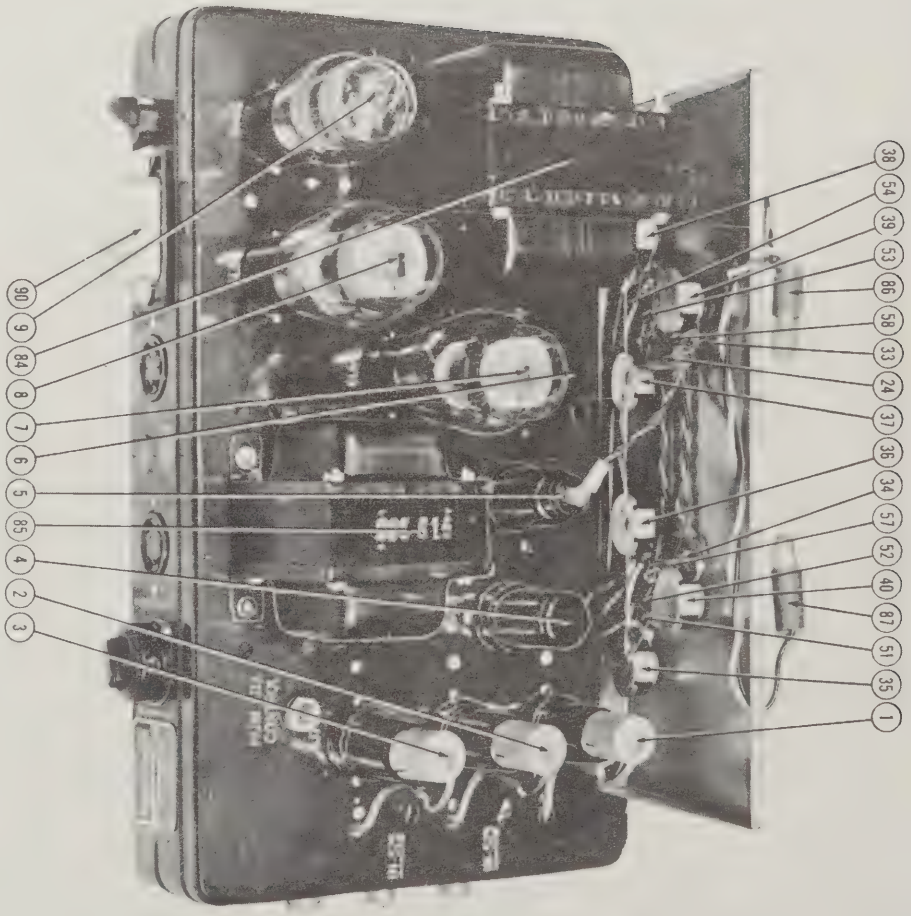
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
35A	500KΩ	½		D13-133	M-60-Z	Mike 1 Control
B	Shaft			A	Not Req.	Attach to 35A per instructions
36A	500KΩ	½		D13-133	M-60-Z	Mike 2 Control
B	Shaft			A	Not Req.	Attach to 36A per instructions
37A	500KΩ	½		D13-133	M-60-Z	Mike 3 Control
B	Shaft			A	Not Req.	Attach to 37A per instructions
38A	500KΩ	½		D13-133	M-60-Z	Phono Control
B	Shaft			A	Not Req.	Attach to 38A per instructions
39A	500KΩ	½		D13-133	M-60-Z	Bass Control
B	Shaft			A	Not Req.	Attach to 39A per instructions
40A	500KΩ	½		D13-133	M-60-Z	Treble Control
B	Shaft			A	Not Req.	Attach to 40A per instructions
41	50Ω	1		W-50	43-50	Hum Bal. Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	IDENTIFICATION CODES
42	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st Mic. Amp. Grid
43	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 2nd Mic. Amp. Grid-See Note 1
44	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue 3rd Mic. Amp. Grid-See Note 1
45	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 1st Mic. Amp. Screen Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

46	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 2nd Mic. Amp. Screen Dropping
47	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 3rd Mic. Amp. Screen Dropping
48	270KΩ	½		BTS-270K	Red-Vi.-Yl. 1st Mic. Amp. Plate Load
49	270KΩ	½		BTS-270K	Red-Vi.-Yl. 2nd Mic. Amp. Plate Load
50	270KΩ	½		BTS-270K	Red-Vi.-Yl. 3rd Mic. Amp. Plate Load
51	270KΩ	½		BTS-270K	Red-Vi.-Yl. Isolation
52	270KΩ	½		BTS-270K	Red-Vi.-Yl. "
53	270KΩ	½		BTS-270K	Red-Vi.-Yl. "
54	270KΩ	½		BTS-270K	Red-Vi.-Yl. "
55	2200Ω	½		BTS-2200	Red-Red-Red Mixer Cathode
56	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Mixer Plate Load
57	270KΩ	½		BTS-270K	Red-Vi.-Yl. Tone Compensation
58	27KΩ	½		BTS-27K	Red-Vi.-Or. " "
59	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Decoupling
60	2200Ω	½		BTS-2200	Red-Red-Red 1st AF Cathode
61	47KΩ	½		BTS-47K	Yl.-Vi.-Or. 1st AF Plate Load
62	270KΩ	½		BTS-270K	Red-Vi.-Yl. 2nd AF Grid
63	1000Ω	½		BTS-1000	Br.-Blk.-Red 2nd AF Cathode
64	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd AF Plate Load
65	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
66	8200Ω	½		BTS-8200	Gray-Red-Red Phase Inverter Grid
67	270KΩ	½		BTS-270K	Red-Vi.-Yl. Output Grid
68	270KΩ	½		BTS-270K	Red-Vi.-Yl. " "
69	200Ω		10	AB-200	Output Cathode
70	27KΩ	½		BTS-27K	Red-Vi.-Or. Decoupling
71	10KΩ		20	DG-10K	Bleeder
72	2500Ω		10	AB-2500	Filter
73	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Decoupling
74	47KΩ	½		BTS-47K	Yl.-Vi.-Or. "
75	100KΩ	½		BTS-100K	Br.-Blk.-Yl. "
76	100KΩ	½		BTS-100K	Br.-Blk.-Yl. "
77	270KΩ	½		BTS-270K	Red-Vi.-Yl. Feedback
78	1000Ω	½		BTS-1000	Br.-Blk.-Red 1st Mic. Amp. Cathode
79	1000Ω	½		BTS-1000	Br.-Blk.-Red 2nd Mic. Amp. Cathode
80	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Cathode Dropping
81	100KΩ	½		BTS-100K	Br.-Blk.-Yl. " "
82	12KΩ	½		BTS-12K	Br.-Red-Or. Decoupling
83	47KΩ	½		BTS-47K	Yl.-Vi.-Or. "

Note 1-Some models use 470KΩ in this application. IRC replacement BTS-470KΩ.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
84	125VAC tapped @ 117VAC @ 1.1A	700VCT @ .14A DC	5.2VAC @ 2.0A	6.4VAC @ 4.2A	P-25A	P-4081†	T22R331#	P-3155†#

†Add series resistor to reduce plate voltage.
#Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
85	7000Ω CT	4Ω 8Ω 15Ω 125Ω 250Ω 500Ω	205Ω CT	.4Ω .5Ω .8Ω 10Ω 14Ω 20Ω	T-25	A-3601	T22S68	A-3130	

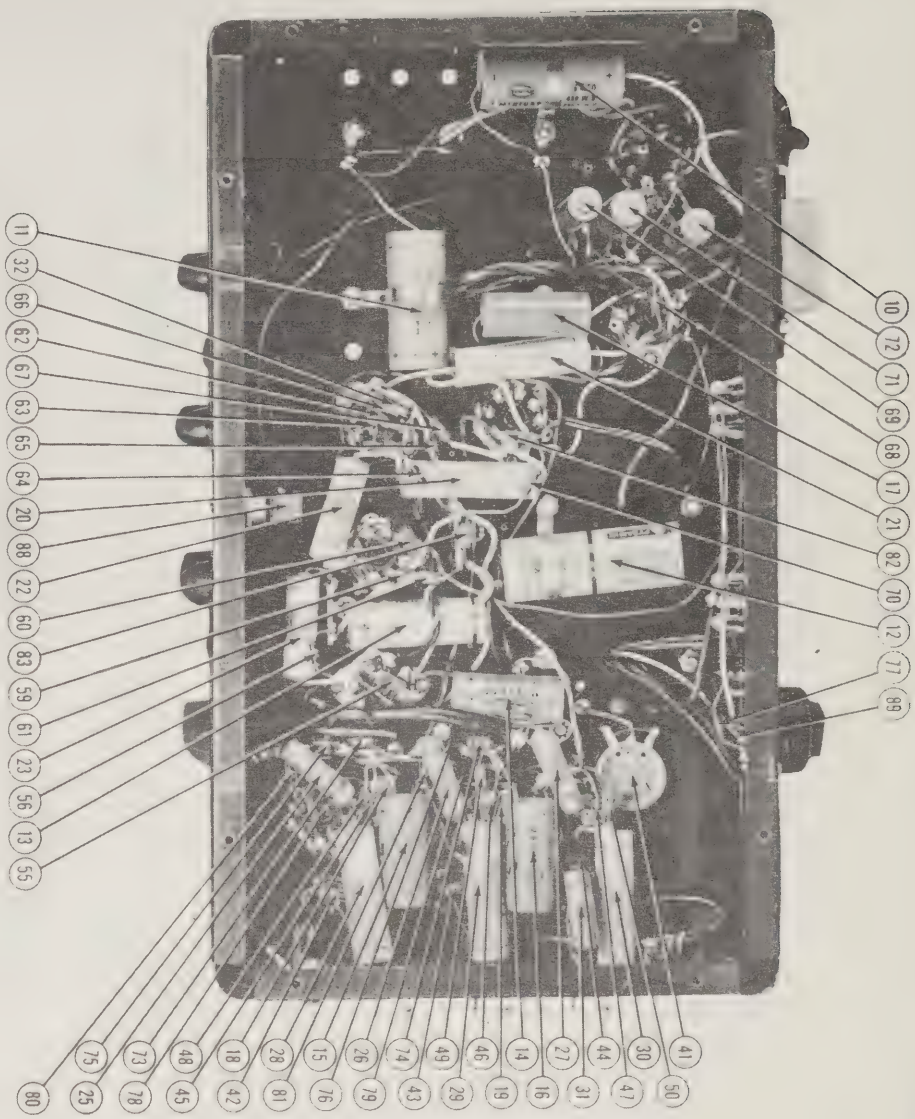
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MASCO PART No.		
86	Bayonet	6-8	0.25	Blue			Type 44
87	"	8-9	0.25	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
88	Switch		On-Off
89	"		Impedance Selector
90	Fuse		1.5 Amp.

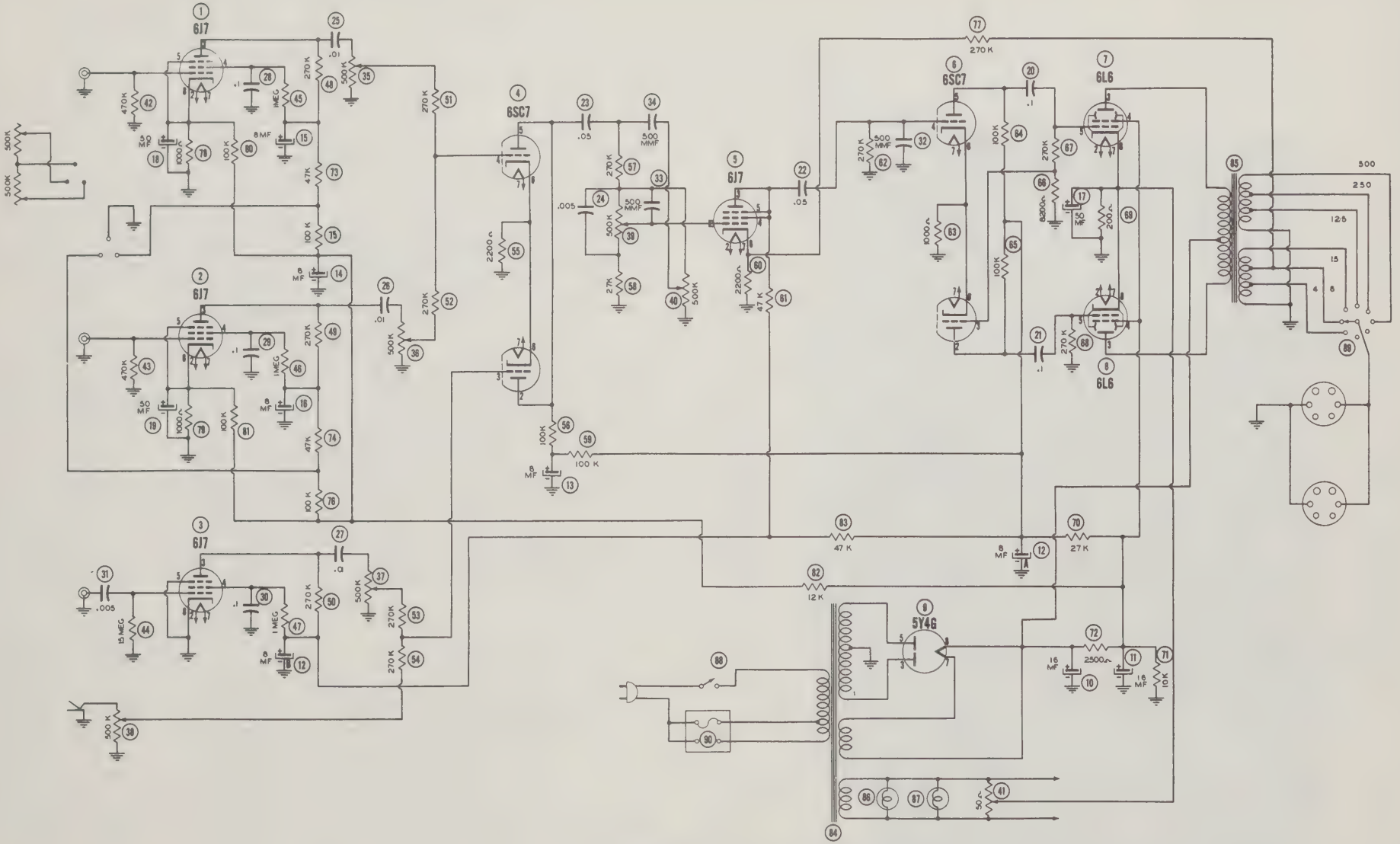
CHASSIS—BOTTOM VIEW



DATE 11/48-#4819-12 SET #49-FOLDER #12

MASCO
MODEL MA-25NR

MASCO
MODEL MA-25NR



THE COOPERATION OF THE MANUFACTURER OF THIS
EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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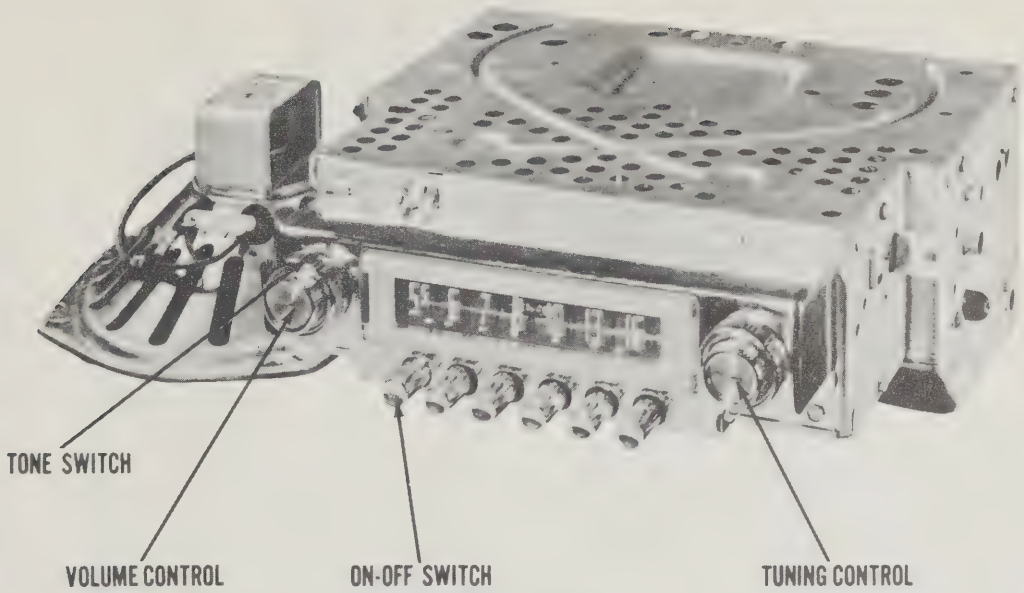
4819-12

MERCURY MODEL 8MM890
(Ch. 8E90) (8M-18805-B)



MERCURY MODEL 8MM890

TRADE NAME	Mercury, Model 8MM890 (8M-18805-B) (Ch. 8E90)
SUPPLIER	Lincoln-Mercury, Div. of Ford Motor Company, Detroit, Mich.
TYPE SET	Battery Operated Custom Built Automotive Superheterodyne Receiver
TUBES (EIGHT)	Types, 7A7 RF Amp., 7B8 Converter, 6BA6 IF Amp., 7E6 or 6SR7 Det.-AVC-AF, 7AF7 AF-Phase Inv., (2) 6V6GT Power Output, 7Y4 Rectifier.
POWER SUPPLY	6 Volt Storage Battery
TUNING RANGE--BROADCAST	540-1600KC RATING 7.8 Amp. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Dummy ant. consists of a 23MMFD capacitor in series with a 27MMFD capacitor shunted across output of signal generator with 23 MMFD capacitor connected to high side of signal generator. Connect antenna socket to junction of the two capacitors. These values of capacitors must be used to insure proper tracking when receiver is installed in car.

If calibration is off after completing adjustments it can be corrected with adjustment screw at pivot end of pointer arm.

If cores are adjusted, apply speaker cement to core screws.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) of 7B8. Low side to chassis.	265KC	Tuning slugs fully out.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output.
2	See pre-alignment notes	See prealignment notes.	535KC	535KC	"	A5	" " " "
3	"	"	1200KC	Tune for maximum output.	"	A6,A7, A8	" " " "
	The following procedure should be followed only when a core or coil has been replaced.						
4	See pre-alignment notes	See prealignment notes.	1700KC	Tuning slugs fully out.	Across voice coil	A5,A6, A7,A8	Screw the cores completely out of the antenna, RF, converter and oscillator coils. Adjust A5, A6, A7 and A8 for maximum output. Replace cores to their approximate original positions.
5	"	"	1200KC	1200KC	"	A9	Adjust for maximum output.
6	"	"	"	Tune for maximum output.	"	A10,A11, A12	" " " "
7	"	"	600KC	"	"	A13	Rock tuning control and adjust for maximum output. Check receiver at 1200KC. If weak or off calibration repeat Steps 5, 6 & 7.

After all adjustments have been made, reinstall receiver in car. Allow to warm up for at least fifteen minutes, and with antenna extended, tune in weak station near 1200KC and adjust A8 for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7A7	7A7	8V	
2	Converter	7B8	7B8	8X	
3	IF Amp.	6BA6	6BA6	7BK	
4A	Det.-AVC-AF	7E6	7E6	8W	
B	Det.-AVC-AF	6SR7	6SR7	8Q	
5	AF-Phase Inv.	7AF7	7AF7	8AC	
6	Power Output	6V6GT	6V6GT	7AC	
7	" "	6V6GT	6V6GT	7AC	
8	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	20	400	22-1484		UP2245C	DY-312	EL-322	■ Filter
B	20	400						▲ "
C	20	25						Cathode Bypass
10	20	25	22-1553	PRS25/25	BR202A	M-25-25	TA-25	" "
11	.5	120	22-1338		DT2P5	SHH-1		Hash Filter
12	.5	100	22-1728		DT2P5	SHH-1		" "
13	.007	1600	22-1713	1684-0075	MD16D7	STM-16-007	TR-27	Buffer
14	.0033	600	22-1747	684-003	DT6D3	ST-6-003	TC-23	Output Plate Bypass
15	.0033	600	22-1747	684-003	DT6D3	ST-6-003	TC-23	" " "
16	.022	600	22-1750	684-02	DT6S2	ST-6-02	TC-12	Audio Coupling
17	.022	600	22-1750	684-02	DT6S2	ST-6-02	TC-12	" "
18	.047	600	22-1749	684-05	DT6S5	ST-6-05	TC-15	" "
19	.1	400	22-1748	484-.1	DT4P1	ST-4-1	TC-1	AF Plate Decoup.
20	.005	400	22-906	484-005	DT6D5	ST-6-005	TC-25	Audio Coupling
21	.0015	600	22-1743	684-002	DT6D2	ST-6-002	TC-22	Tone Comp.
22	.01	200	22-1466	484-01	DT2S1	ST-4-01	TC-11	" "
23	.005	600	22-906	684-005	DT6D5	ST-6-005	TC-25	" "
24	.022	200	22-1751	484-02	DT2S2	ST-4-02	TC-12	AVC Filter
25	.1	400	22-170	484-.1	DT4P1	ST-4-1	TC-1	Screen Decoupling
26	.1	200	22-190	484-.1	DT2P1	ST-2-1	TC-1	Sensitivity Control Byp.
27	.0047	600	22-1752	684-005	DT6D5	ST-6-005	TC-25	Common Coupling Cap.
28	250	500	22-182	1468-00025	5W5T25	MO.5-325	1FM-325	AF Plate Bypass
29	750	500	22-242	1468-00075	1W5T7	MO.3-37	1FM-37	Tone Comp.
30	150	600	22-1137	1468-00015	5W5T15	MO.5-315	1FM-315	" "
31	100	300	22-1730	1468-0001	5W5T1	MO.5-31	1FM-31	IF Coupling-Cer.
32	100	300	22-1730	1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Coupling-Cer.
33	100	300	22-1730	1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.-Cer.
34	260	300	22-1712					Fixed Trimmer-Cer.
35	250	500	22-1136	1469-00025	5R5T25	MOS.5-325	MS-325	" " "
36	100	300	22-1730	1468-0001	5W5T1	MO.5-31	1FM-31	RF Coupling-Cer.

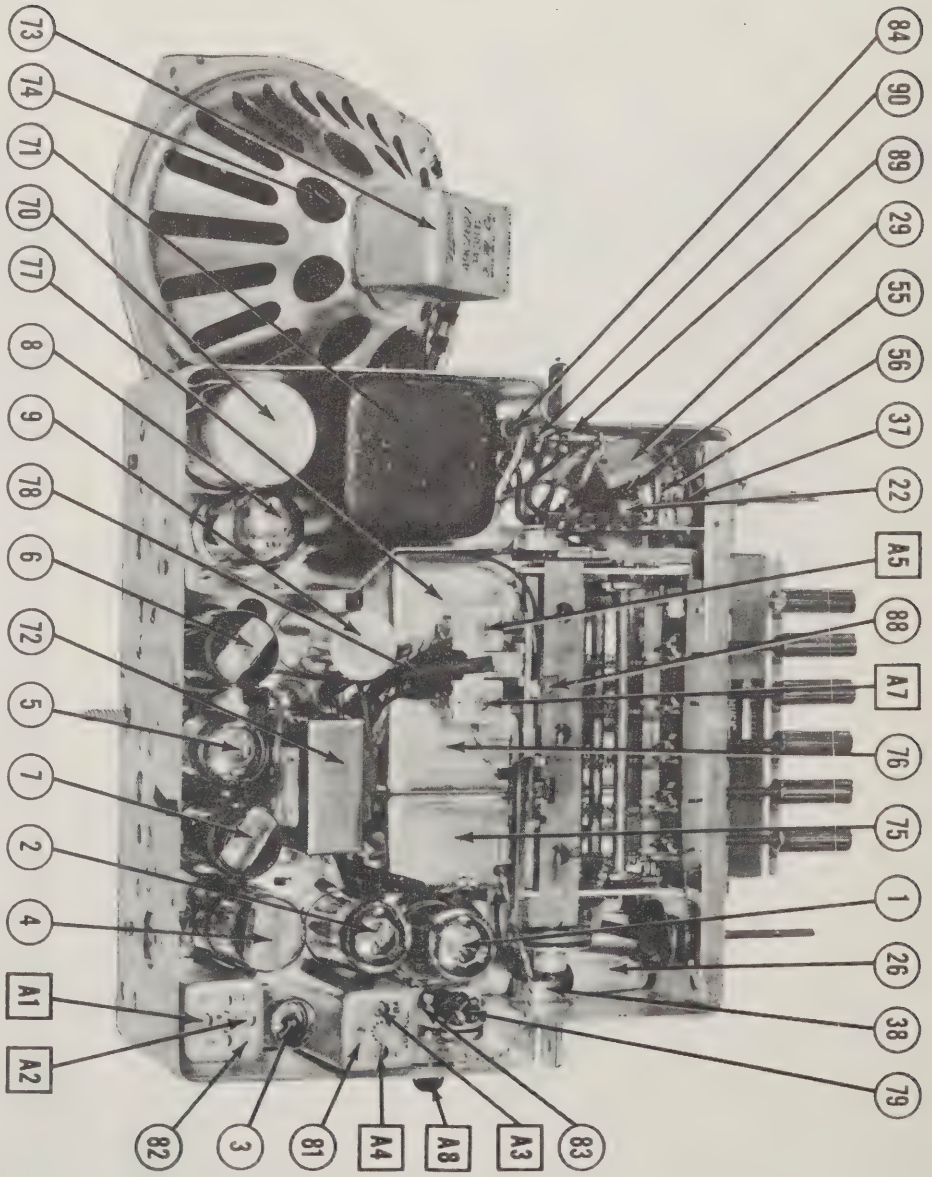
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
37A	1 Meg.	½	63-1590			Volume Control
B	Switch	½				Tone Switch
38	600Ω	1	63-1379			Sensitivity Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES
39	330KΩ	½	63-1891	BTS-330K	Or.-Or.-Yl. RF Grid
40	10KΩ	½	63-1827	BTS-10K	Br.-Blk.-Or. Rf Plate Load
41	330K.	½	63-1891	BTS-330K	Or.-Or.-Yl. Conv. Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	
42	6.8Ω	½	63-1802	BTS-68K	Blue-Gray-Or. Osc. Grid
43	16KΩ	½	63-1838	BTS-16K	Br.-Gray-Or. Osc. Grid
44	15KΩ	½	63-1835	BTS-15K	Br.-Grn.-Or. Conv. Screen Dropping
45	1 Meg.	½	63-1912	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
46	1 Meg.	½	63-1912	BTS-1 Meg.	Br.-Blk.-Grn. " "
47	470Ω	½	63-1771	BTS-470	Yl.-Vi.-Br. IF Cathode
48	33KΩ	½	63-1398	BTA-33K	Or.-Or.-Or. Screen Dropping
49	220KΩ	½	63-1884	BTS-220K	Red-Red-Yl. Tone Comp.
50	220KΩ	½	63-1884	BTS-220K	Red-Red-Yl. Diode Load
51	1500Ω	½	63-1792	BTS-1500	Br.-Grn.-Red 1st AF Cathode
52	56KΩ	½	63-1859	BTS-56K	Grn.-Blue-Or. 1st AF Plate Load
53	27KΩ	½	63-1845	BTS-27K	Red-Vi.-Or. 1st AF Plate Decoup.
54	120KΩ	½	63-1873	BTS-120K	Br.-Red-Yl. Tone Comp.
55	68KΩ	½	63-1862	BTS-68K	Blue-Gray-Or. " "
56	100KΩ	½	63-1869	BTS-100K	Br.-Blk.-Yl. " "
57	56KΩ	½	63-1859	BTS-56K	Grn.-Blue-Or. " "
58	330KΩ	½	63-1891	BTS-330K	Or.-Or.-Yl. 2nd AF Grid
59	56KΩ	½	63-1859	BTS-56K	Grn.-Blue-Or. 2nd AF Plate Load
60	1000Ω	½	63-1785	BTS-1000	Br.-Blk.-Red AF Cathode
61	30KΩ	½	63-1846	BTS-33K	Or.-Blk.-Or. Phase Inv. Grid
62	56KΩ	½	63-1859	BTS-56K	Grn.-Blue-Or. Phase Inv. Plate Load
63	330KΩ	½	63-1890	BTS-330K	Or.-Or.-Yl. Output Grid
64	330KΩ	½	63-1890	BTS-330K	Or.-Or.-Yl. " "
65	330Ω	2	63-1822	BW-2-330	Or.-Or.-Br. Output Cathode
66	470KΩ	½	63-1897	BTS-470K	Yl.-Vi.-Yl. Feedback
67	1800Ω	2	63-1620	BT-2-1800	Br.-Gray-Red Filter
68	82Ω	½	63-1740	BW-½-82	Gray-Red-Blk. Hash Suppressor
69	82Ω	½	63-1740	BW-½-82	Gray-Red-Blk. " "

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA		INSTALLATION NOTES
				ZENITH PART No.	RADIART PART No.	
70	Interrupter	6.3 VDC	115 ~	190-22A	5300	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
71	6.3V DC @ 4.4A	590V AC @ 67A DC			95-1071		T22R20#		

#Drill new mounting holes.

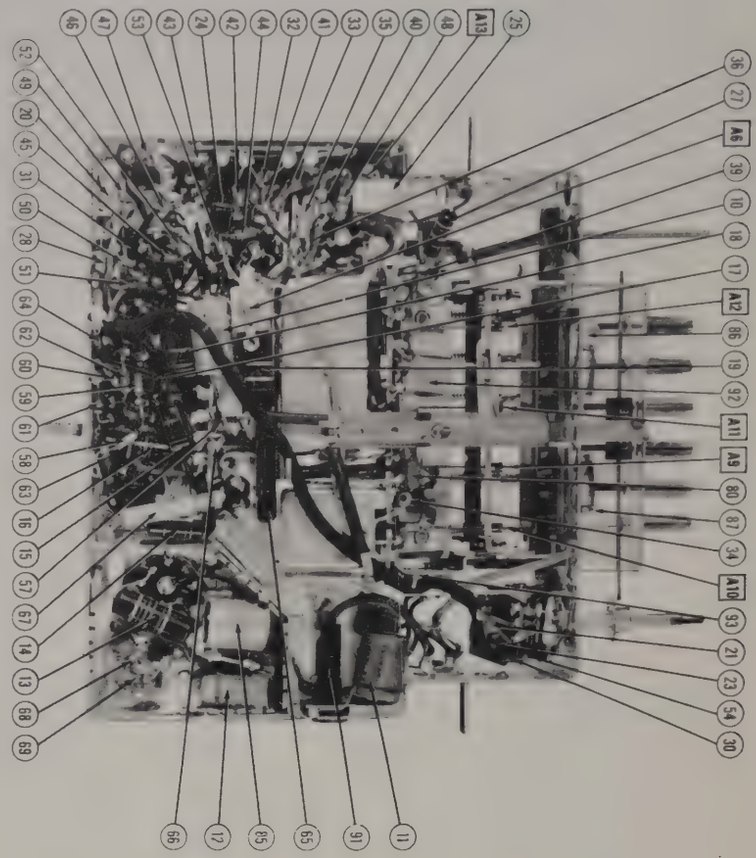
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
	PRI.	SEC.	PRI.	SEC.					
72	9000Ω CT	3.6Ω	370Ω CT	.6Ω	95-1079	A-3823	T22S47#	A-2936	#Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
73	PM	3.6Ω	49-627		69A3	
	CONE DIA.	VC DIA.				
74	6"x9"	9/16"				

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
75	Ant. Coil		13Ω	S-14227*		*Items 76, 77, 78 & 79 are ganged together and slug tuned. They are part of complete tuning assembly which may be obtained under Part #S14295.
76	Presel. Coil		13Ω	S-14227*		
77	RF Coil		13Ω	S-14227*		
78	Osc. Coil		3.6Ω	S-14228*		
79	Osc. Shunt	7.8Ω	4.8Ω	S-14225		
80	Osc. Series		1Ω	S-14226		
81	Input IF	39.8Ω	40Ω	95-1077		
82	Output IF	69Ω		95-1078		
83	Ant. Choke		1Ω	S-8819		
84	Noise Choke		0Ω	S-11232		
85	Hash Choke		0Ω	20-213		

DIAL LIGHT

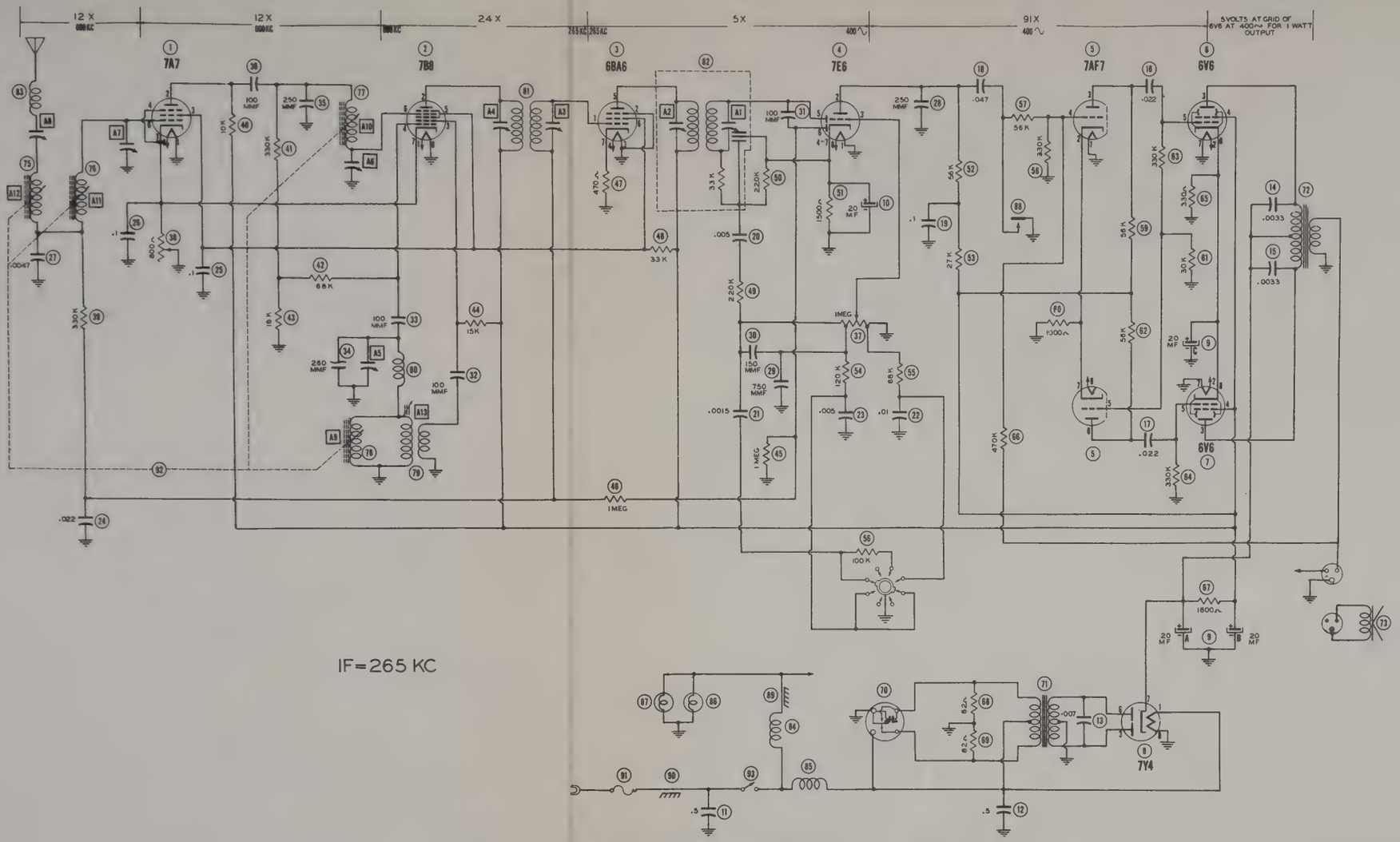
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ZENITH PART No.		
86	Bayonet	6-8	0.4	White			Type #55
87	"	6-8	0.4	"			" "

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
88	Switch	S-14534	Muting
89	Spark Plate		
90	" "		
91	Fuse	136-11	14 Amp.
92	Tuning Assby.	8-14386	
A5	Trimmer Strip	22-1722	Osc. Adj.
A7			Ant. Adj.
A6	Trimmer	22-1715	RF Adj.
A8	"	22-1721	Ant. Adj.
	Dial Scale	26-395	
	Dial Pointer	59-208	

PUSHBUTTON ADJUSTMENTS

1. Turn set on and allow to warm up for at least fifteen minutes.
2. Make up a list of stations desired to be set up.
3. Tune in the first station selected with the manual tuning control.
4. Loosen any button for this station, by turning counter-clockwise a few turns.
5. Push button completely in and release.
6. Tighten the button firmly.
7. To check accuracy of setting, detune with manual control and retune with pushbutton. If setting is off repeat Steps 3, 4, 5 and 6.
8. To set up the remaining buttons follow the procedure outlined above.



†READINGS TAKEN WITH SENSITIVITY CONTROL SET AT MAXIMUM RESISTANCE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	0V.	200V.C	95VDC	6.6VDC†	0V.	0V.	6.6VDC†	-6.3VDC
2	7B8	-6.3VDC	220VDC	160VDC	-6.5VDC§	95VDC	1VDC	6.6VDC†	0V.
3	6BA6	0V.	0V.	0V.	-6.3VDC	220VDC	95VDC	2.7V.C	-
4	7E6	0V.	68VDC	0V.	2.5VDC	.1VDC	0V.	2.5VDC	-6.3VDC
5	7AF7	-6.3VDC	4.3VDC	96VDC	0V.	0V.	98VDC	4.3VDC	0V.
6	6V6GT	0V.	-6.3VDC	255VDC	215VDC	0V.	0V.	0V.	13VDC
7	6V6GT	0V.	-6.3VDC	255VDC	215VDC	0V.	0V.	0V.	13VDC
8	7Y4	-6.3VDC	0V.	285VAC	295V.C	0V.	295VAC	260VDC	0V.

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7A7	.02	4 Meg.	4 Meg.	800†	0Ω	2.3 Meg.	800Ω†	.1Ω
2	7B8	.1Ω	4 Meg.	4 Meg.	86KΩ	4 Meg.	350KΩ	800Ω†	0Ω
3	6BA6	2 Meg.	0Ω	0Ω	.1Ω	4 Meg.	4 Meg.	470Ω	-
4	7E6	0Ω	4 Meg.	800KΩ	1.5KΩ	250KΩ	1 Meg.	1.5KΩ	.1Ω
5	7AF7	.1Ω	1KΩ	4 Meg.	180KΩ	30KΩ	4 Meg.	1KΩ	0Ω
6	6V6GT	0Ω	.1Ω	4 Meg.	4 Meg.	360Ω	INF.	0Ω	330Ω
7	6V6GT	0Ω	.1Ω	4 Meg.	4 Meg.	330KΩ	INF.	0Ω	330Ω
8	7Y4	.1Ω	INF.	230Ω	230Ω	INF.	210Ω	4 Meg.	0Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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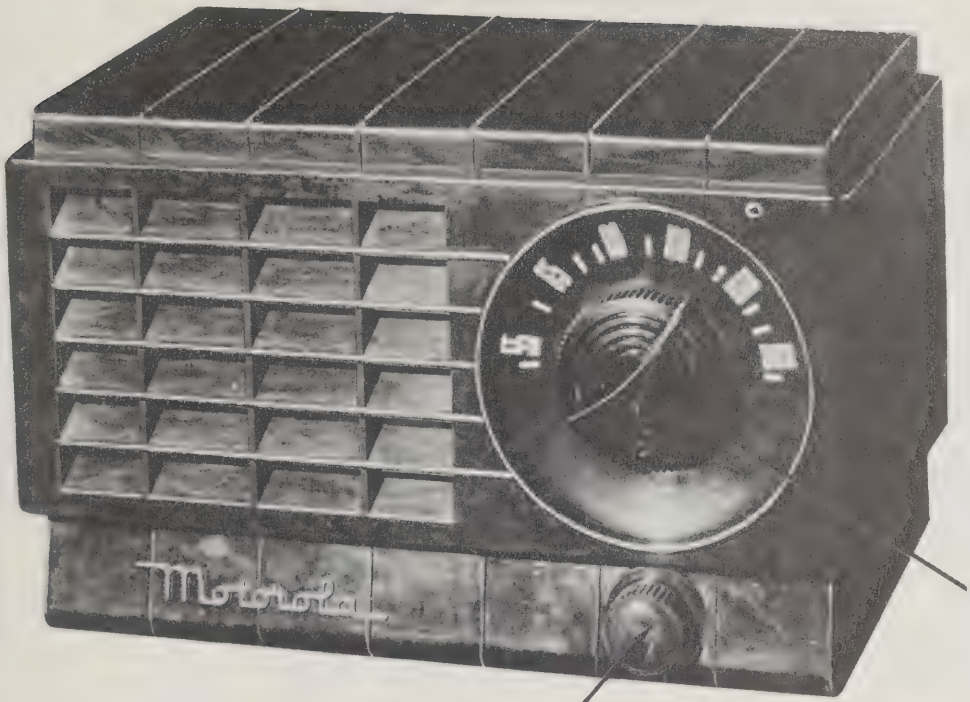
MOTOROLA MODELS 58R11, 58R12, 58R13, 58R14, 58R15, 58R16 (Ch. HS-116)



MOTOROLA MODELS 58R11, 58R12, 58R13, 58R14, 58R15, 58R16 (Ch. HS-116)

MOTOROLA MODEL 58R11

TRADE NAME	Motorola, Models 58R11, 58R12, 58R13, 58R14, 58R15, 58R16 (Ch. HS-116)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	535-1620KC RATING .23 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available, if not connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 7 (grid) of 12BE6. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD. to reduce hum modulation.
2		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 11/48-#4819-14 SET #49-FOLDER #14

PARTS LIST AND DESCRIPTIONS

MOTOROLA MODEL 58R11

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	23B478135	PRSA150/30-50	EDL5315	DSB-5030-150	TA-530	Filter-Red
B	30	150					"	-Green
7	.05	400	8S9816	484-05	DT4S5	ST-4-05	TC-15	Line Filter
8	.02	400	8S9802	484-02	DT4S2	ST-4-02	TC-12	Output Plate Bypass
9	.01	400	8S9809	484-01	DT4S1	ST-4-01	TC-11	Audio Coupling
10	.005	600	8S9813	684-005	DT6D5	ST-6-005	TC-25	" "
11	.05	200	8S9821	484-05	DT6S5	ST-4-05	TC-15	AVC Filter
12	250	500	21K77375	1468-00025	5W5T25	MO.5-325	1FM-325	AF Plate Bypass-Cer.
13	250	500	21K77375	1468-00025	5W5T25	MO.5-325	1FM-325	Diode RF Filter- "

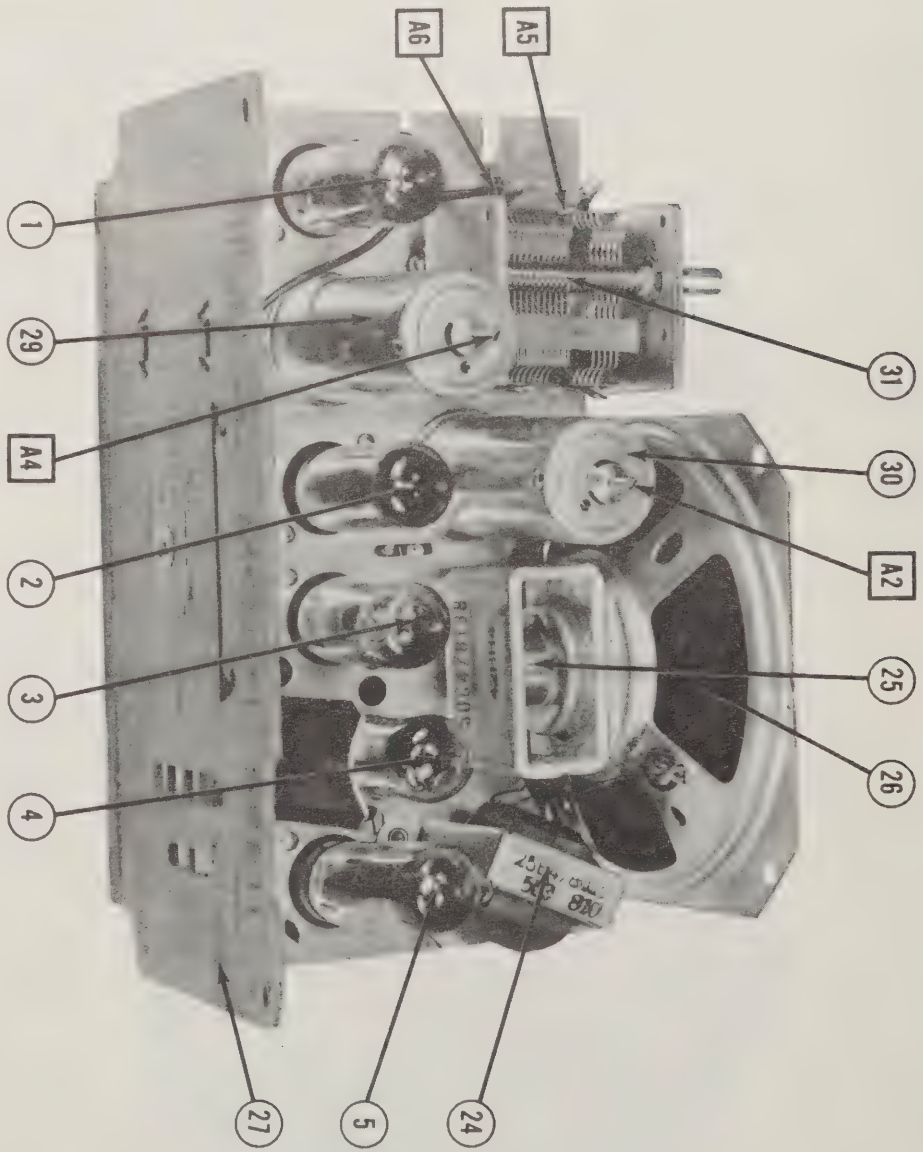
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
14A	1 Meg.	½	18A-478122	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 14A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
15	22KΩ	½	6R6028	BTS-22K	Red-Red-Or. Osc. Grid
16	68Ω	½	6R6007	BW-½-68	Blue-Gray-Blk. IF Cathode
17	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
18	10 Meg.	½	6R2109	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
19	470KΩ	½	6R6032	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
20	470KΩ	½	6R6032	BTS-470K	Yl.-Vi.-Yl. Output Grid
21	150Ω	½	6R3992	BTS-½-150	Br.-Grn.-Br. Output Cathode
22	1000Ω	1	6R3953	BTA-1000	Br.-Blk.-Red Filter
23	27Ω	½	6R5683	BW-½-27	Red-Vi.-Blk. Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
24	1800Ω	3.0Ω	186Ω	.5Ω	25B478121		T22S45	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-113		
25	PM	3.0Ω	50C478138	Mod. P4-X	4A07	
	CONE DIA.	VC DIA.				
26	4"	9/16"				

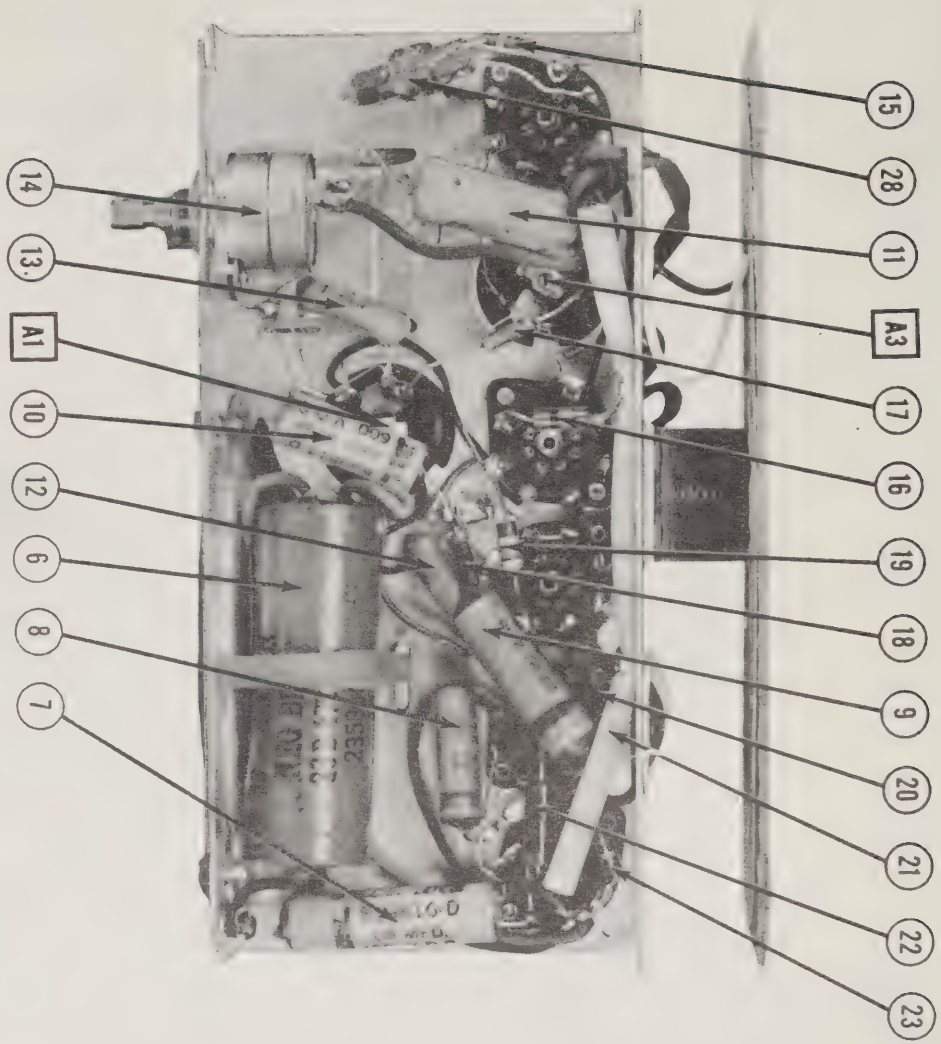
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
27	Loop Ant.		3Ω	24B478139		
28	Osc. Coil		13.4Ω	24A478129		
29	Input Coil	15Ω	15Ω	24B478123	16-6678	
30	Output Coil	15Ω	14.5Ω	24B478123	16-6678	

MISCELLANEOUS

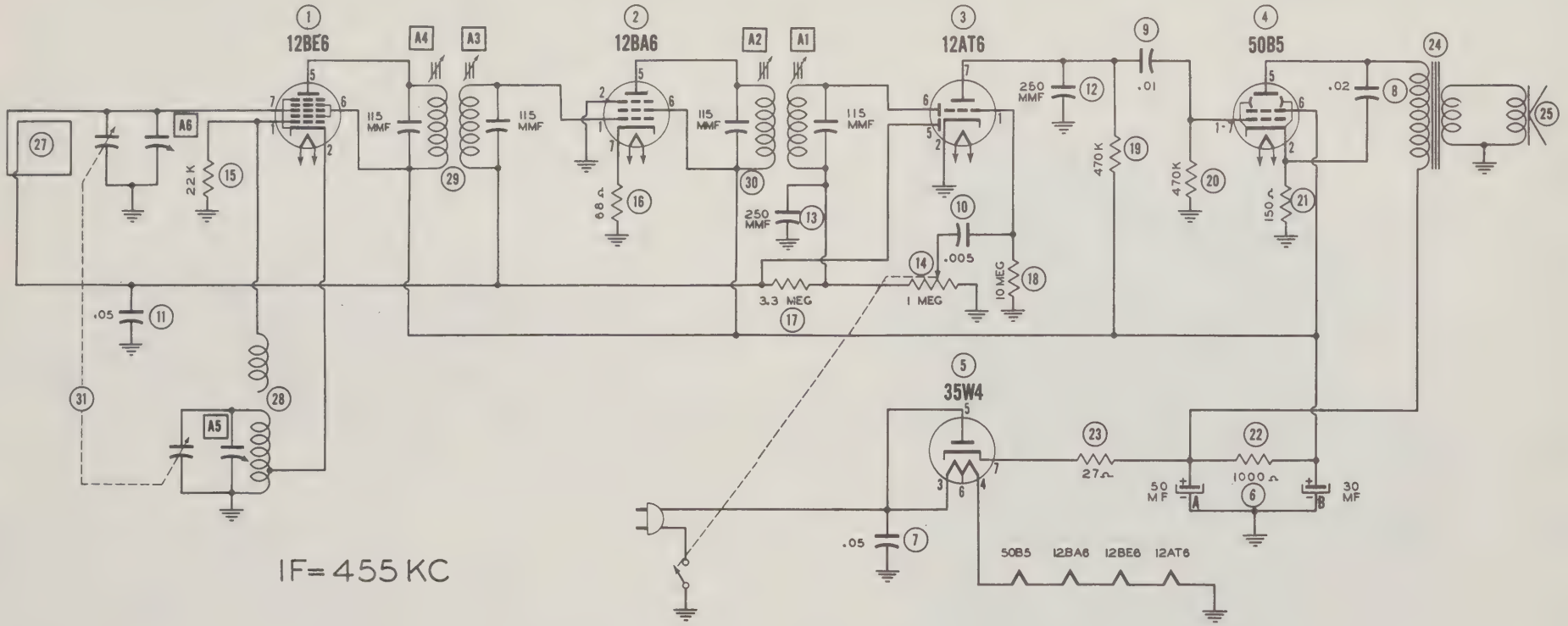
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
31	2 Gang Var. Cap.	19B478123	(23-385MMF, 14-107MMF)
	Knob	36A478148	Volume (Model 58R11)
	"	36K484375	" (Model 58R12, 58R13)
	"	36K485156	" (Model 58R14, 58R15, 58R16
	"	36B478147	Tuning (Model 58R11)
	"	36K484377	" (Model 58R12, 58R13)
	"	36K485157	" (Model 58R14, 58R15, 58R16)

CHASSIS—BOTTOM VIEW



MOTOROLA MODEL 58R11

MOTOROLA MODEL 58R11



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-8.4VDC§	0V.	23VAC	11VAC	95VDC	95VDC	-.4VDC
2	12BA6	-.4VDC	0V.	23VAC	35VAC	95VDC	95VDC	1VDC
3	12AT6	-.6VDC	0V.	0V.	11VAC	-.4VDC	-.4VDC	45VDC
4	50B5	0V.	6.8VDC	35VAC	80VAC	115VDC	95VDC	0V.
5	35W4	120VDC	120VDC	117VAC	80VAC	117VAC	90VAC	120VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	1Ω	25Ω	12Ω	90KΩ	90KΩ	4.3 Meg.
2	12BA6	4.3 Meg.	0Ω	25Ω	36Ω	90KΩ	90KΩ	68Ω
3	12AT6	10 Meg.	0Ω	0Ω	12Ω	4.3 Meg.	1 Meg.	560KΩ
4	50B5	470KΩ	150Ω	36Ω	85Ω	90KΩ	90KΩ	470KΩ
5	35W4	90KΩ	90KΩ	120Ω	85Ω	120Ω	95Ω	90KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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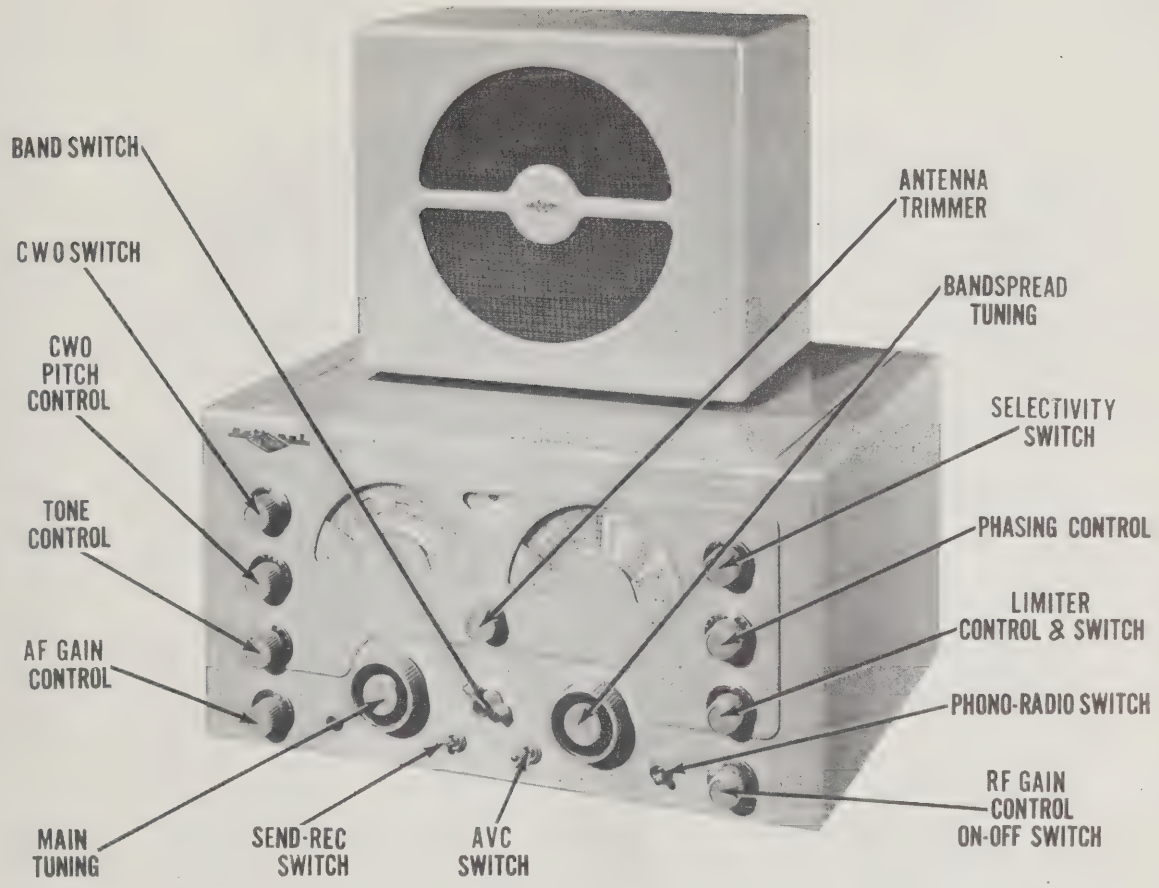
4819-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

NATIONAL MODELS
NC-183R, NC-183T



NATIONAL MODELS
NC-183R, NC-183T

NATIONAL MODEL NC-183R

TRADE NAME	National, Models NC-183R, NC-183T
MANUFACTURER	National Co., Inc., 61 Sherman St., Malden, Mass.
TYPE SET	AC or Battery Operated Commercial Type Multi-Band Superheterodyne Receiver
TUBES (SIXTEEN)	Types, 6SG7 1st RF Amp., 6SG7 2nd RF Amp., 6SA7 Mixer, 6J5 Oscillator, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6AC7 AVC Amp., 6SJ7 CW Osc., 6H6 2nd Det.-AVC, 6H6 Limiter, 6SJ7 1st AF Amp., 6J5 Phase Inv., (2) 6V6GT Power Output, 0D3/VR150 Voltage Regulator, 5U4G Rectifier.
POWER SUPPLY	110-120 or 220-240 Volts AC or Batteries (6 Volt Storage Battery and 135-250 Volt "B" Battery)
TUNING RANGE-BROADCAST .54-1.6MC	SHORT WAVE Band "A" 48-56MC, Band "B" 12-31MC, Band "C" 4.3-12MC, Band "D" 1.6-4.3MC

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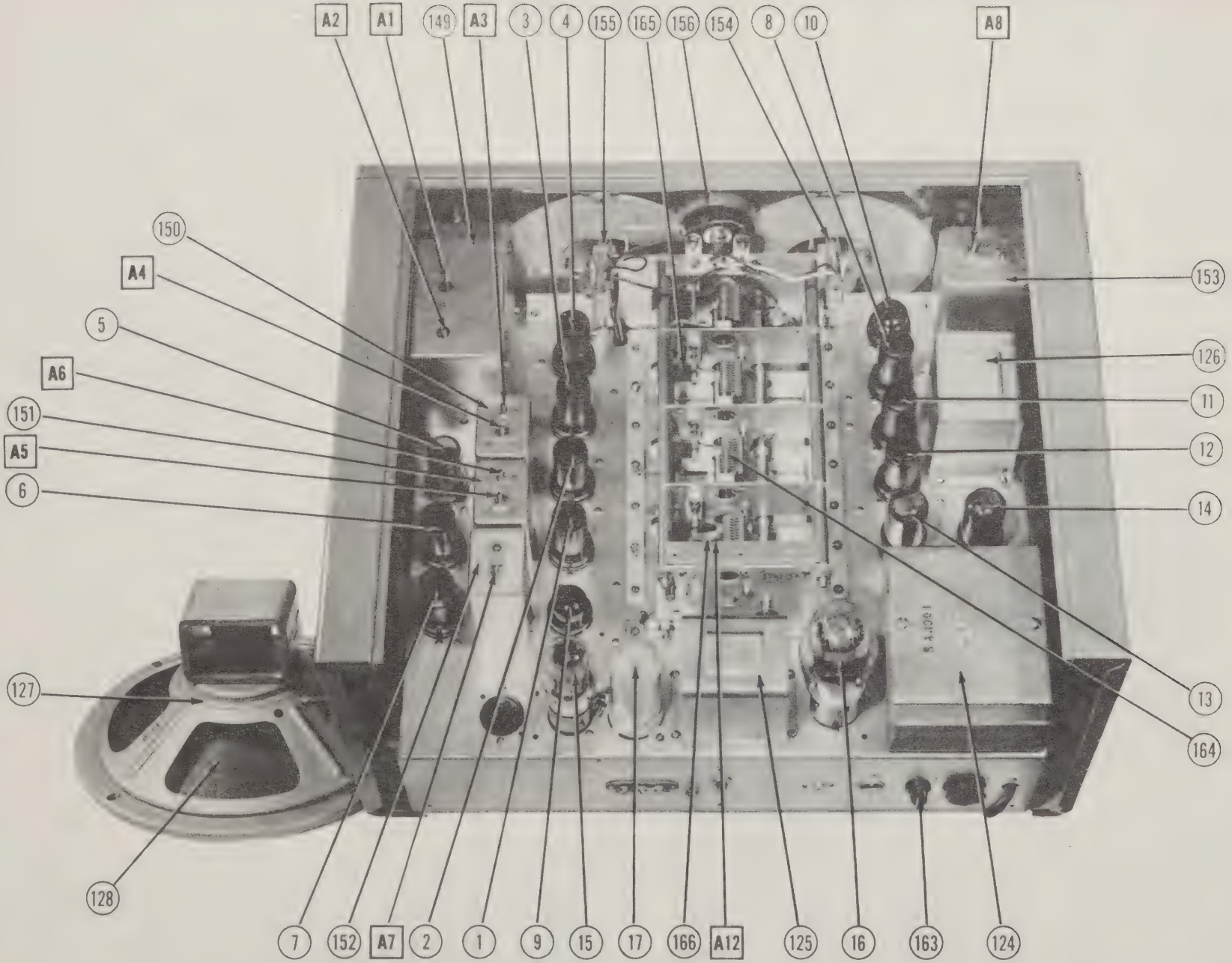
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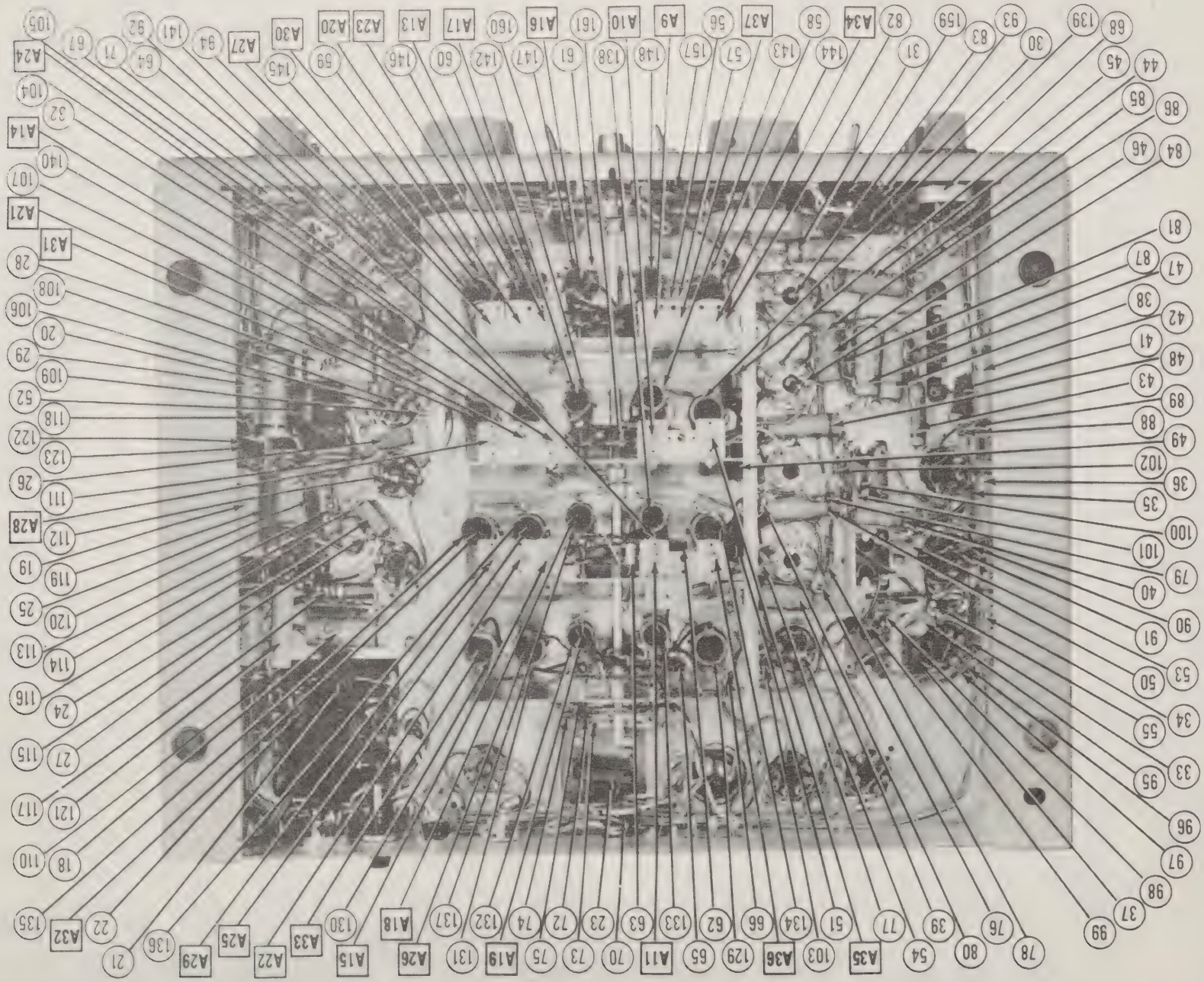
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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st RF Amp.	6SG7	6SG7	8BK	
2	2nd RF Amp.	6SG7	6SG7	8BK	
3	Mixer	6SA7	6SA7	8R	
4	Osc.	6J5	6J5	8Q	
5	1st IF Amp.	6SG7	6SG7	8BK	
6	2nd IF Amp.	6SG7	6SG7	8BK	
7	AVC Amp.	6AC7	6AC7	8N	
8	C.W. Osc.	6SJ7	6SJ7	8N	
9	2nd Det. AVC	6H6	6H6	7Q	
10	Limiter	6H6	6H6	7Q	
11	1st Audio	6SJ7	6SJ7	8N	
12	Phase Inverter	6J5	6J5	8Q	
13	Power Output	6V6GT/G	6V6GT/G	7AC	
14	" "	6V6GT/G	6V6GT/G	7AC	
15	Voltage Reg.	0D3/VR150	0D3/VR150	4AJ	
16	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: NATIONAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
17A	10	475			KR588AX	DH-2x8-450SS		Filter
B	10	475						"
18	25	50		PRS50/25	BR255	M-25-50	TA-525	Cathode Bypass
19	25	50		PRS50/25	BR255	M-25-50	TA-525	Bias Filter
20	10	50		PRS50/10	BR105	M-10-50	TA-510	Cathode Bypass
21	.01	600		684-01	DT6S1	ST-6-01	TC-11	Line Filter
22	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
23	.1	400		484-.1	DT4P1	ST-4-1	TC-1	RF Bypass
24	.01	600		684-01	DT6S1	ST-6-01	TC-11	Audio Coupling
25	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
26	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
27	.1	400		484-.1	DT4P1	ST-4-1	TC-1	AF Plate Decoupling
28	.25	400		484-.25	DT4P25	ST-4-25	TC-2	AF Screen Bypass
29	.005	500		684-005	DT6D5	ST-6-005	TC-25	Tone Comp.
30	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Audio Coupling
31	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Limiter Bypass
32	.1	400		484-.1	DT4P1	ST-4-1	TC-1	B.F.O. Screen Byp.
33	.01	600		684-01	DT6S1	ST-6-01	TC-11	AVC Amp. Screen Byp.
34	.05	600		684-05	DT6S5	ST-6-05	TC-15	AVC Amp. Decoup.
35	.01	600		684-01	DT6S1	ST-6-01	TC-11	2nd IF Screen Byp.
36	.05	600		684-05	DT6S5	ST-6-05	TC-15	2nd IF Decoupling
37	.01	600		684-01	DT6S1	ST-6-01	TC-11	S Meter Bypass
38	.1	400		484-.1	DT4P1	ST-4-1	TC-1	AVC Filter
39	.1	400		484-.1	DT4P1	ST-4-1	TC-1	" "
40	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
41	.01	600		684-01	DT6S1	ST-6-01	TC-11	1st IF Screen Byp.
42	.05	600		684-05	DT6S5	ST-6-05	TC-15	1st IF Decoupling
43	.01	600		684-01	DT6S1	ST-6-01	TC-11	AVC Filter
44	.05	600		684-05	DT6S5	ST-6-05	TC-15	Mixer Plate Decoup.
45	.01	600		684-01	DT6S1	ST-6-01	TC-11	Mixer Screen Byp.
46	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Mixer Cathode Bypass
47	.1	400		484-.1	DT4P1	ST-4-1	TC-1	RF Bypass Power Supply
48	.05	600		684-05	DT6S5	ST-6-05	TC-15	2nd RF Plate Decoupling
49	.01	600		684-01	DT6S1	ST-6-01	TC-11	2nd RF Screen Bypass
50	.05	600		684-05	DT6S5	ST-6-05	TC-15	1st RF Plate Decoup.
51	.01	600		684-01	DT6S1	ST-6-01	TC-11	1st RF Screen Byp.
52	1000	500		1467-001	1W5D1	MW.5-21	1FM-21	Output Plate Bypass
53	270	500		1468-00025	5W5T25	MO.5-325	1FM-325	Diode RF Filter
54	47	300		1468-00005	5W5Q5	MO.5-45	1FM-45	BFO Coupling-Cer.
55	47	300		1468-00005	5W5Q5	MO.5-45	1FM-45	IF Coupling-Cer.
56	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.-Cer.
57	1000	300		1467-001	1W5D1	MW.5-21	1FM-21	Osc. Coupling
58	420	500						Fixed Padder
59	1250	500						" "
60	4200	500						" "
61	8500	500						" "
62	1000	300		1467-001	1W5D1	MW.5-21	1FM-21	RF Coupling
63	5	300		1468-000005	5W5V5	MO.5-55	MS-55	RF Coupling-Cer.
64	10	300		1468-00001	5W5Q1	MO.5-41	1FM-41	" " "
65	1000	300		1467-001	1W5D1	MW.5-21	1FM-21	RF Coupling-Cer.
66	250	500		1468-00025	5W5T25	MO.5-325	1FM-325	Antenna Coupling-Cer.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
124	117V AC @ .95A	660V CT .125A DC	5.0V AC @ 3.0A	6.6V AC @ 4.9A	SA3901	P-5059†		

†Drill new mounting holes and mount vertically.

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000 ℃	REPLACEMENT DATA: NATIONAL PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
125	.125A	293Ω	15 henries	SA1694		T20C54#	C-3187#	#Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
126	10KΩ CT	500Ω tapped @ 6.9Ω	515Ω CT	88Ω tapped @ 1.5Ω	SA3901				

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-120		
127	PM	6.9Ω		Mod. P10-S	10A6	
	CONE DIA.	VC DIA.				
128	9-3/4"	1"				

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: NATIONAL PART No.	REPLACEMENT DATA: MEISSNER PART No.
	Band				
129	Ant. Coil E	3Ω	0Ω		
130	" " D	1.3Ω	0Ω		
131	" " C	.1Ω	0Ω		
132	" " B	0Ω	0Ω		
133	" " A	0Ω	0Ω		
134	1st RF E	1Ω	5Ω		
135	" " D	1Ω	.8Ω		
136	" " C	7Ω	.1Ω		
138	" " B		0Ω		
138	" " A	.1Ω	0Ω		
139	2nd RF E	.8Ω	[illegible]		
140	" " D	.7Ω	.8Ω		
141	" " C	[illegible]	0Ω		
142	" " B	0Ω	0Ω		
143	" " A	0Ω	0Ω		
144	Osc.Coil E	1Ω	2.5Ω		
145	" " D	1Ω	.4Ω		
146	" " C	.2Ω	0Ω		
147	" " B	0Ω	0Ω		
148	" " A	0Ω	0Ω		
149	1st IF	2Ω			
150	2nd IF	2Ω	2Ω		
151	3rd IF	2Ω	2Ω		
152	AVC Amp. Coil		2Ω		
153	B.F. Osc. Coil				

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	NATIONAL PART No.	IRC PART No.	CLAROSTAT PART No.	
67A	500KΩ	½		D13-133	M-60-Z	AF Gain Control
B	Shaft			A	Not Req.	Attach to 67A per instructions
68	10KΩ	1				RF Gain Control
69A	100KΩ	½		D11-128	M-49-S	Limiter Control
B	Shaft			A	Not Req.	Attach to 69A per instructions
C	Switch			43	SW-A1	" " " " "
70	2 Meg.	½			M-83-S	"S" Meter Control
71A	500KΩ	½		D13-133	M-60-Z	Tone Control
B	Shaft			A	Not Req.	Attach to 71A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	NATIONAL PART No.	IRC PART No.	
72	330Ω	½		BW-½-330	Or.-Or.-Br. Bias Network
73	680Ω	½		BW-½-680	Blue-Gray-Br. " "
74	270Ω	1		BW-1-270	Red-Vi.-Br. " " -See Note
75	220KΩ	½		BTS-220K	Red-Red-Yl. Series "S" Meter
76	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 1st RF Grid
77	33KΩ	½		BTS-33K	Or.-Or.-Or. 1st RF Screen
78	2000Ω	½		BTS-2200	Red-Blk.-Red 1st RF Decoup.
79	100KΩ	½		BTS-100K	Br.-Blk.-Yl. 2nd RF Grid
80	33KΩ	½		BTS-33K	Or.-Or.-Or. 2nd RF Screen
81	2200Ω	½		BTS-2200	Red-Red-Red 2nd RF Plate Decoup.
82	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
83	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Osc. Plate
84	220Ω	½			Red-Red-Br. Mixer Cathode
85	33KΩ	½		BTS-33K	Or.-Or.-Or. Mixer Screen
86	2200Ω	½		BTS-2200	Red-Red-Red Mixer Plate Decoup.
87	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
88	33KΩ	½		BTS-33K	Or.-Or.-Or. 1st IF Screen
89	2200Ω	½		BTS-2200	Red-Red-Red 1st IF Decoupling
90	33KΩ	½		BTS-33K	Or.-Or.-Or. 2nd IF Screen
91	2200Ω	½		BTS-2200	Red-Red-Red 2nd IF Decoupling
92	68KΩ	½		BTS-68K	Blue-Gray-Or. Diode Load
93	270KΩ	½		BTS-270K	Red-Vi.-Yl. Limiter Bias Network
94	270KΩ	½		BTS-270K	Red-Vi.-Yl. Limiter Load
95	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Amp. Grid
96	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AVC Amp. Screen
97	2200Ω	½		BTS-2200	Red-Red-Red AVC Amp. Decoup.
98	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Series "S" Meter
99	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AVC Network
100	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. " "
101	270KΩ	½		BTS-270K	Red-Vi.-Yl. " "
102	220KΩ	½		BTS-220K	Red-Red-Yl. " "
103	220KΩ	½		BTS-220K	Red-Red-Yl. BFO Plate
104	100KΩ	½		BTS-100K	Br.-Blk.-Yl. BFO Screen Dropping
105	100KΩ	½		BTS-100K	Br.-Blk.-Yl. BFO Screen Bleeder
106	2200Ω	½		BTS-2200	Red-Red-Red AF Cathode
107	1 Meg	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Screen Dropping
108	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Screen Bleeder
109	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Plate Load
110	47KΩ	½		BTS-47K	Yl.-Vi.-Or. AF Plate Decoup.
111	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Phase Inv. Grid
112	4700Ω	½		BTS-4700	Yl.-Vi.-Red Phase Inv. Cathode
113	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inv. Cathode
114	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Phase Inv. Plate Load
115	270KΩ	½		BTS-270K	Red-Vi.-Yl. Output Grid
116	270KΩ	½		BTS-270K	Red-Vi.-Yl. " "
117	330Ω	2		BW-2-330	Or.-Or.-Br. Output Cathode
118	470Ω	2		BT-2-470	Yl.-Vi.-Br. Output Transformer Sec. Loading
119	1000Ω	1		BTA-1000	Br.-Blk.-Red Bias
120	1000Ω	1		BTS-1000	Br.-Blk.-Red "
121	5000Ω	10		AB-5000	Voltage Dropping
122	100Ω	½		BW-½-100	Br.-Blk.-Br. Feedback
123	4700Ω	½		BTS-4700	Yl.-Vi.-Red "

Note-Some models may use a 470Ω ½ W. resistor in this application.

DATE 11/48-#4819-15 SET #40-FOLDER #15

PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

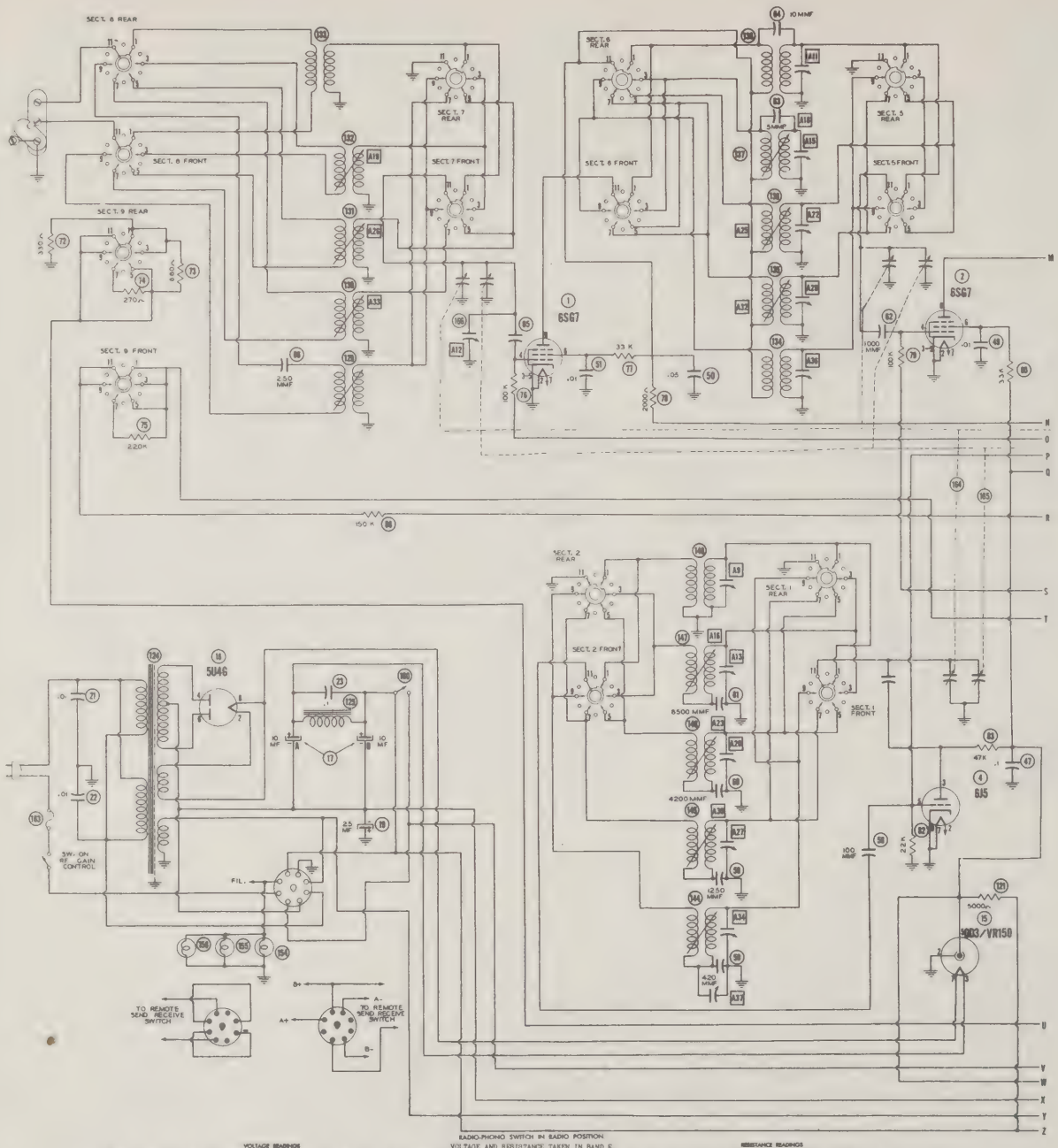
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					NATIONAL PART No.		
154	Bayonet	6-8	0.15	Brown			Type 47
156							

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
157	Switch		AVC
158	"		CW Osc.
159	"		Radio-Phono
160	"		Send-Receive
161	"		Band
162	"		Selectivity
163	Fuse		2 Amp., 250 Volts
164	4 Gang Var. Cap.		(16-358MMF) each section
165	4 Gang Var. Cap.		Bandspread
166	Trimmer Cap.		A12
167	Crystal Resonator		(455KC)

BATTERY OPERATION

The NC-183 may be operated in portable or emergency service by connecting batteries to the terminals of the power socket located at the rear of the Receiver. An octal plug, similar to the AC jumper plug, may be wired and used for interconnection between batteries and Receiver. The battery plug used must be wired in accordance with the drawing shown on the schematic diagram. A 6 volt heater supply (storage battery) should be connected to terminals 3 and 5 and 135 to 250 volt "B" supply connected to terminals 4 and 8. The recommended "B" voltage supply for battery economy is between 135 and 180 volts. At voltages between 135 and 150 the voltage regulator tube will not ignite affecting a further battery economy. For stand-by operation in all cases it is recommended that a switch be placed in the battery B+ lead for increased battery economy as the "B" switch on the Receiver does not open the B supply circuit to the H.F. oscillator, voltage regulator, and push-pull audio output tubes. A suggested refinement is to include a switch in the A+ lead so that the tube heaters may be turned off when the Receiver is not in use without the necessity of removing the battery plug from the battery socket.



RADIO-PHONO SWITCH IN RADIO POSITION
VOLTAGE AND RESISTANCE TAKEN IN BAND E.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BG7	0V.	0V.	0V.	-2VDC	0V	170VDC	-.6VA.	256VDC
2	6BJ7	0V.	0V.	0V.	1.6VDC	0V.	1.69VDC	6.6VAC	256VDC
3	6BA7	0V.	6.6VAC	265VDC	147.DC	-15VDC‡	0VDC	0V.	0V.
4	6J5	0V.	6.6VAC	247DC	0V.	-15VDC‡	145VDC	0V.	0V.
5	6BG7	0V.	0V.	0V.	.8VDC	0V.	175VDC	6.6VAC	256VDC
6	6BG7	0V.	0V.	0V.	0V.	0V.	165VDC	6.6VAC	250VDC
7	6AC7	0V.	0V.	0V.	-1VDC	0V.	160VDC	6.6VAC	240VDC
8	6BJ7	0V.	0V.	0V.	-2.6VDC‡	0V.	135VDC	6.6VAC	35VDC
9	6H6	0V.	0V.	-.4VDC	0V.	-2.4VDC	20VDC	6.6VAC	0V.
10	6H6	0V.	0V.	-.2VDC	.2VDC	-.2VDC	0V.	6.6VA.	.2VDC
11	6BJ7	0V.	0V.	0V.	0V.	1.2VDC	36VDC	6.6VAC	60VDC
12	6J5	0V.	0V.	11VDC	15VDC	1VDC	0V.	6.6VAC	20VDC
13	6Y6GT	0V.	0V.	265VDC	265VDC	-45.6VDC	0V.	6.6VAC	-7.6VDC
14	6Y6GT	0V.	0V.	260VDC	265VDC	-21.5VDC	0V.	6.6VAC	-7.6VDC
15	VR150/0D3	0V.	0V.	320VDC	0V.	150VDC	0V.	320VDC	0V.
16	5U4G	0V.	0V.	330VAC	0V.	330VAC	0V.	330VAC	310VDC

‡LIMITER SWITCH IN ON POSITION.
*CMO SWITCH IN ON POSITION.
SELECTIVITY CONTROL IN OFF POSITION
TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE 8's CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BG7	0Ω	0Ω	0Ω	360KΩ	0Ω	140KΩ	.1Ω	100KΩ
2	6BJ7	0Ω	0Ω	0Ω	450KΩ	0Ω	140KΩ	.1Ω	100KΩ
3	6BA7	0Ω	.1Ω	100KΩ	140KΩ	22KΩ	220Ω	1Ω	0Ω
4	6J5	0Ω	.1Ω	150KΩ	INF.	22KΩ	90KΩ	.5Ω	0Ω
5	6BG7	0Ω	0Ω	1Ω	1.4 Meg.	0Ω	140KΩ	.1Ω	100KΩ
6	6BG7	0Ω	0Ω	0Ω	340KΩ	0Ω	140KΩ	.1Ω	100KΩ
7	6AC7	0Ω	0Ω	0Ω	440KΩ	0Ω	200KΩ	1Ω	100KΩ
8	6BJ7	0Ω	0Ω	0Ω	560Ω	1Ω	100KΩ	.1Ω	140KΩ
9	6H6	0Ω	Ω	170KΩ	0Ω	30KΩ	140KΩ	.1Ω	0Ω
10	6H6	0Ω	0Ω	68KΩ	650KΩ	500KΩ	INF.	.1Ω	55KΩ
11	6BJ7	0Ω	0Ω	0Ω	560KΩ	2.2KΩ	330KΩ	.1Ω	250KΩ
12	6J5	0Ω	0Ω	150KΩ	47KΩ	500KΩ	INF.	.1Ω	52KΩ
13	6Y6GT	0Ω	0Ω	100KΩ	100KΩ	270KΩ	1Ω	.1Ω	35Ω
14	6Y6GT	0Ω	0Ω	100KΩ	100KΩ	270KΩ	1MF.	.1Ω	65Ω
15	VR150/0D3	0Ω	0Ω	100KΩ	INF.	100KΩ	INF.	100KΩ	INF.
16	5U4G	INF.	100KΩ	INF.	500Ω	INF.	500Ω	INF.	100KΩ

SEND-RECEIVE SWITCH IN RECEIVE POSITION.
AVC MVC SWITCH IN AVC POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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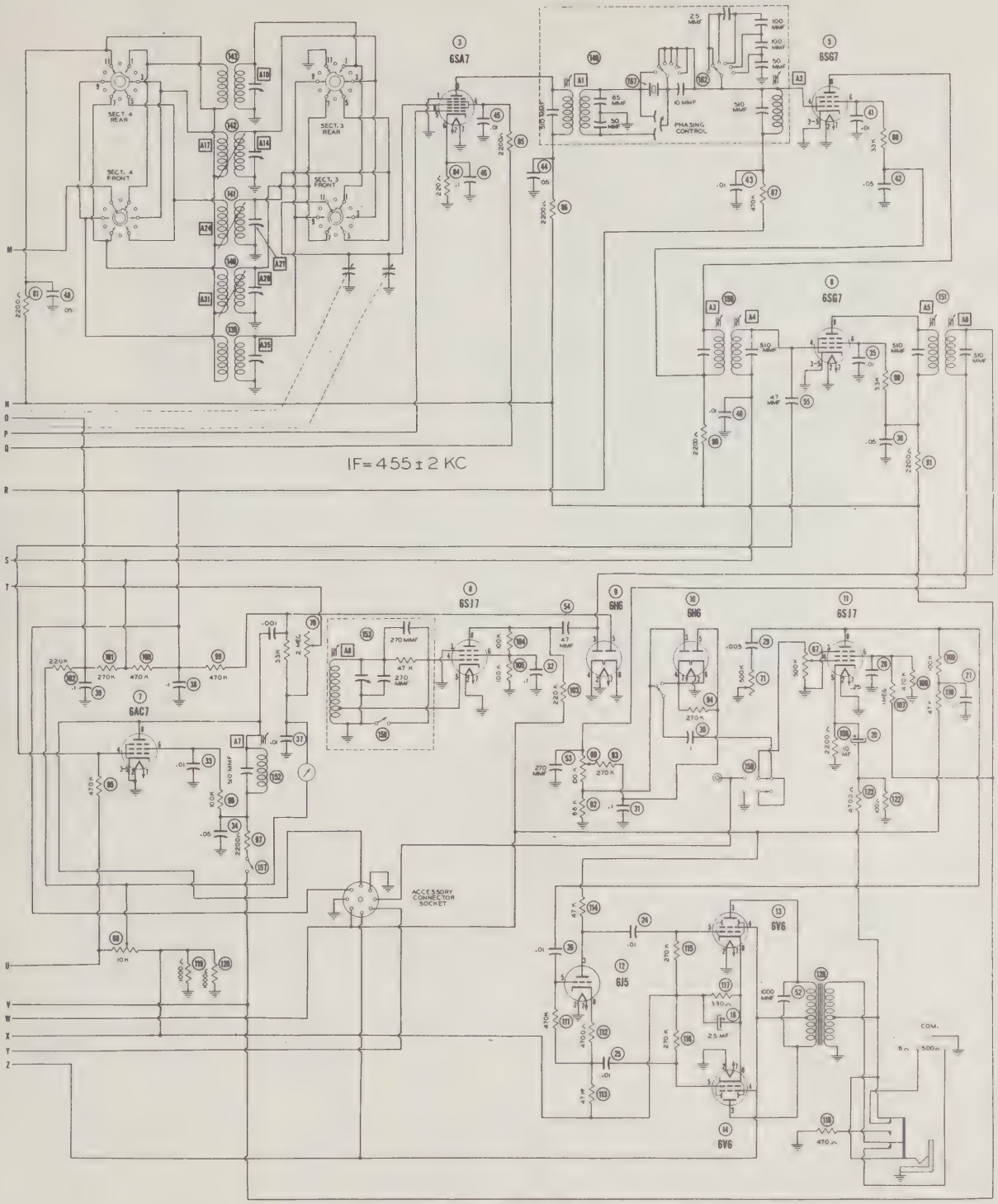

STAGE GAIN MEASUREMENTS						
ANTENNA TO RF GRID	1X	600KC	INTER IF TRANS.	1X	455KC
1st RF to 2nd RF GRID	2X	600KC	2nd IF [illegible]	2X	455KC
RF GRID TO CONV. GRID	2X	600KC	OUTPUT IF TRANS.	1X	455KC
CONVERSION GAIN	10X	IN 600KC	AVC AMP.	2X	455KC
		OUT 455KC	AUDIO	25X	400 ~
INPUT IF TRANS	.4X	455KC	PHASE INVERTER	6X	400 ~
1st IF TUBE	100X	455KC	OUTPUT	25X	455 ~

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

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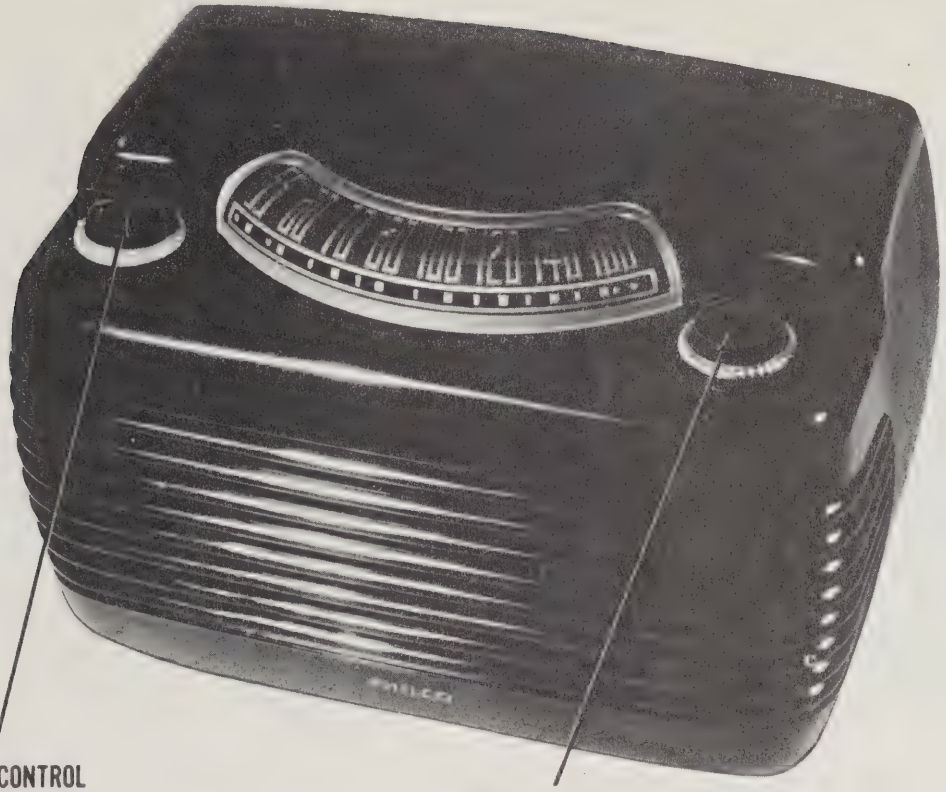
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Controls should be set as follows: Bandspread dial at "Set" mark, CWO Switch at Off, CWO Control at Zero, Tone Control at 10, AF Gain at 10, Send-Rec. Switch at Rec., AVC Switch at MVC, Phono-Radio Switch at Radio, RF Gain at 10, Limiter at Off, Phasing Control at Zero, and Selectivity Switch at Off, except where noted otherwise. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

Tracking of coils may be checked by use of tuning wand. Correct tracking of coil is indicated when insertion of either end of tuning wand causes an increase in output, correct tracking may be accomplished by adjustment of loops of wire (inside coil forms) designated by "A" Nos. in Steps 9,10,13,14,17 & 18.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	Direct	High side to stator of 2nd section from front of tuning cap. Low side to chassis.	455KC (approx. unmodulated)	Band "E"	Tuning cap. fully open.	Across voice coil	Sig. Gen.	Set "CWO" switch to "ON". Set selectivity control to "5". "CWO" control set to provide audible note. Tune sig. gen. for maximum output.
2	Direct	"	Do not change (turn modulation on)	"	"	"	A1,A2, A3,A4, A5,A6	Set "CWO" switch to "OFF". Set selectivity control to "Off". Adjust A1 thru A6 for maximum output.
3	Direct	"	"	"	"	"	A7	Set AVC/MVC switch to AVC. Adjust A7 for minimum output.
4	Direct	"	Do not change (turn modulation off)	"	"	"	A8	Return AVC/MVC switch to MVC. Set "CWO" switch at "ON". Set "CWO" control at zero. Adjust A8 for zero beat. Return "CWO" switch to "OFF".
5	400Ω carbon resistor	High side to ant. terminal "A". Low side to other ant. terminal with link connected.	56.0MC	Band "A"	Main dial at ⑥. Bandspread dial at 56MC	"	A9	Adjust for maximum output. Tune sig. gen. to 56.9MC. If signal is not heard, retune sig. gen. to 56MC and open A9 to next peak. Adjust for maximum output and recheck for image.
6	"	"	"	"	Tune for maximum output.	"	A10, A11, A12	Rock tuning cap. and adjust for maximum output. Set bandspread dial to "SET" mark.
7	"	"	30MC	Band "B"	30MC	"	A13	Adjust for maximum output. Tune sig. gen. to 30.9MC. If signal is not heard, retune sig. gen. to 30MC and open A13 to next peak. Adjust for maximum output and recheck for image.
8	"	"	"	"	Tune for maximum output.	"	A14, A15, A12	Rock tuning cap. and adjust A14 & A15 for maximum output. Check tracking of 1st RF stage by rotating A12 for one complete revolution. Two peaks should be obtained. Either one is correct for maximum output.
9	"	"	14.0MC	"	14MC	"	A16	Adjust for maximum output.
10	"	"	"	"	"	"	A17. A18 A19	Check tracking of coils associated with these adjustments per prealignment instructions. Repeat Steps 7 thru 10 until no further improvement can be made.
11	"	"	11.0MC	Band "C"	11MC	"	A20	Adjust for maximum output. Tune sig. gen. to 11.9MC. If signal is not heard, retune sig. gen. to 11.0 MC and open A20 to next peak. Adjust for maximum output and recheck for image.
12	"	"	"	"	Tune for maximum output.	"	A21, A22, A12	Rock tuning cap. and adjust A21 & A22 for maximum output. Check tracking of 1st RF stage by rotating A12 one complete revolution. Two peaks should be obtained. Either one is correct for maximum output.
13	"	"	5.0MC	"	5MC	"	A23	Adjust for maximum output.
14	"	"	"	"	"	"	A24, A25, A26	Check tracking of coils associated with these adjustments per prealignment instructions. Repeat Steps 11 thru 14 until no further improvement can be made.
15	"	"	4.0MC	Band "D"	4MC	"	A27	Adjust for maximum output. Tune sig. gen. to 4.9MC. If signal is not heard, retune sig. gen. to 4.0 MC and open A27 to next peak. Adjust for maximum output and recheck for image.
16	"	"	"	"	Tune for maximum output.	"	A28, A29, A12	Rock tuning cap. and adjust A28 & A29 for maximum output. Check tracking of 1st RF Stage by rotating A12 one complete revolution. Two peaks should be obtained. Either one is correct for maximum output.
17	"	"	1.8MC	"	1.8MC	"	A30	Adjust for maximum output.
18	"	"	"	"	"	"	A31, A32 A33	Check tracking of coils associated with these adjustments per prealignment instructions. Repeat Steps 15 thru 18 until no further improvement can be made.
19	200 MMFD	"	1.5MC	Band "E"	1.5MC	"	A34	Adjust for maximum output. Tune sig. gen. to 2.4MC. If signal is not heard, retune sig. gen. 1.5MC and open A34 to next peak. Adjust for maximum output and recheck for image.
20	200MMFD	"	"	"	Tune for maximum output.	"	A35 A36 A12	Rock tuning cap. and adjust for maximum output.
21	200MMFD	"	.6MC	"	.8MC	"	A37	Adjust for maximum output. Repeat Steps 19, 20 & 21 until no further improvement can be made.



PHILCO MODELS
49-900-E, 49-900-I

PHILCO MODELS
49-900-E, 49-900-I

PHILCO MODEL 49-900-E

TRADE NAME	Philco, Models 49-900-E, 49-900-I
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 14AF7 Converter, 7B7 1st IF Amp., 7B7 2nd IF Amp., 7C6 Det.-AVC-AF, 50L6GT Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .23 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to Pin 5 (grid) of 14AF7. Low side to B-.	455KC	Tuning cap. fully closed.	Across voice coil	A1,A2, A3,A4.	Turn A3 completely clockwise. Adjust A1 thru A4 for maximum output in order given. Reinstall receiver in cabinet.
	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

PHILCO MODELS 49-900-E, 49-900-I

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14AF7	14AF7	8AC	
2	1st IF Amp.	7B7	7B7	8V	
3	2nd IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	30-2570-14	PRSA150/20-30	EZ42215	DSB403020-150	D10095	Filter-Orange
B	25	150		PRS150/24				" -Blue
C	20	150						Decoupling-Red
8	.04	400	30-4119	484-04	DT4S4	ST-6-04	TC-14	Line Filter
9	.2	400	30-4594				72P3	Line Isolation
10	.02	400	30-4599	484-02	DT4S2	ST-4-02	TC-12	Output Plate Bypass
11	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	Audio Coupling
12	.01	400	61-0120	484-01	DT4S1	ST-4-01	TC-11	" "
13	.05	200	30-4510	484-05	DT2S5	ST-4-05	TC-15	AVC Filter
14	.05	200	30-4510	484-05	DT2S5	ST-4-05	TC-15	Screen Bypass
15	.003	600	30-4582	684-003	DT6D3	ST-6-003	TC-23	Decoupling
16	.05	200	30-4510	484-05	DT2S5	ST-4-05	TC-15	Conv. Cathode Byp.
17	.04	400	45-3500-2	484-04	DT4S4	ST-6-04	TC-14	Tuning Cap. Isolation
18	.0015	600	30-4621	1467-0015	1W5D15	MW.5-215	1FM-215	Ext. Ant. Isolation
19	220	300	62-122001001	1468-0002	5W5T2	MO.5-32	1FM-32	Output Grid Bypass-Cer.
20	220	300	62-122001001	1468-0002	5W5T2	MO.5-32	1FM-32	IF Coupling-Cer.
21	100	500	30-1225-2	1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.
22	220	300	62-122001001	1468-0002	5W5T2	MO.5-32	1FM-32	Osc. Coupling-Cer.
23	500	500		1468-0005	5W5T5	MO.5-35	1FM-35	RF Coupling

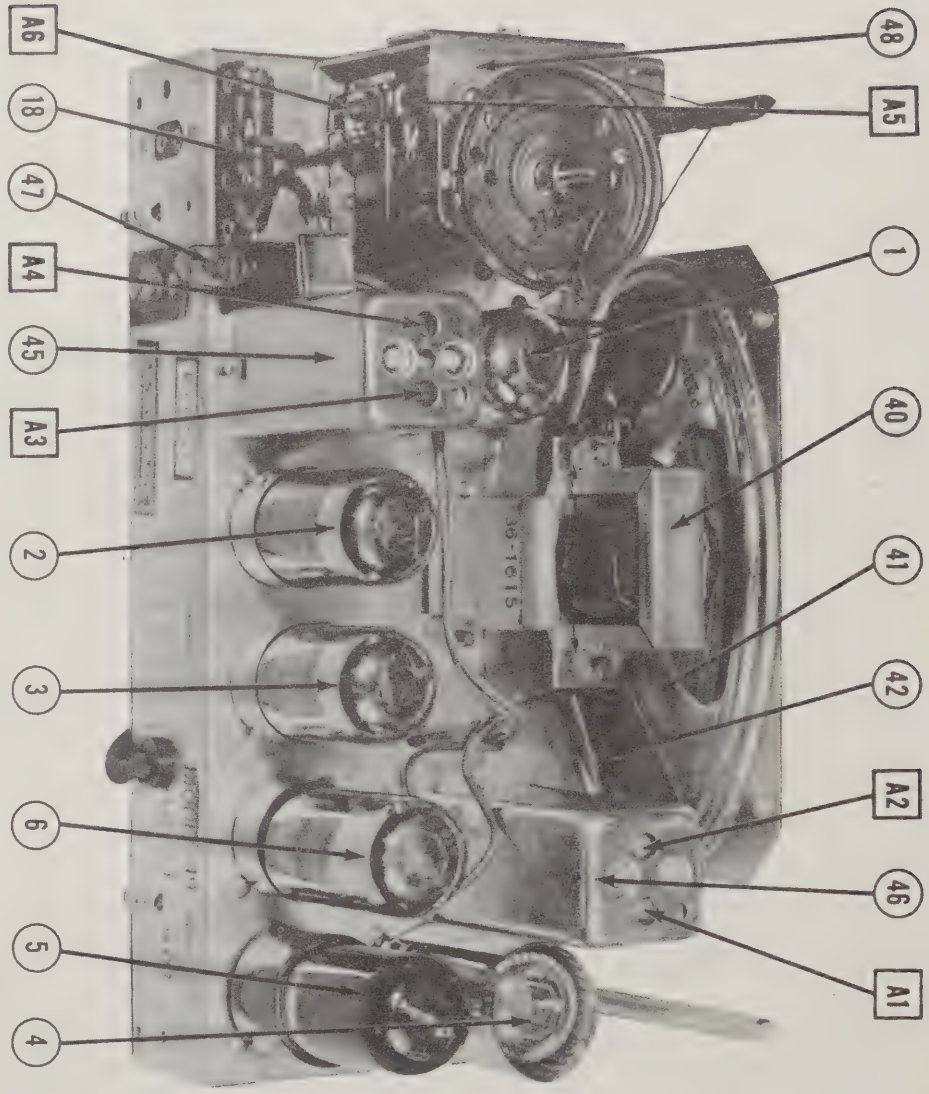
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24	580KΩ	½	33-5491			Volume Control & Switch

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
25	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Osc. Grid
26	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Osc. Plate Load
27	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Conv. Cathode
28	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. Conv. Grid
29	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Decoupling
30	16KΩ	½		BTS-15K	Br.-Blue-Or. 1st IF Plate Load
31	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. 2nd IF Grid
32	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. IF Screen Dropping
33	3.3 Meg.	½	66-5333340	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
34	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
35	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
36	130Ω	½	66-1123340	BW-½-150	Br.-Or.-Br. Output Cathode
37	1200Ω	½	66-2123340	BTS-1200	Br.-Red-Red Filter
38	220Ω	1	66-1224340	BW-1-220	Red-Red-Br. "
39	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Line Isolation
49	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Network

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
40	2000Ω	3.4Ω	180Ω	.7Ω	Part of 36-1615	A-3876	T22S45	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
41	PM	3.4Ω	36-1615		46A07	
	CONE DIA.	VC DIA.				
42	4"x6"	9/16"				

R F COILS

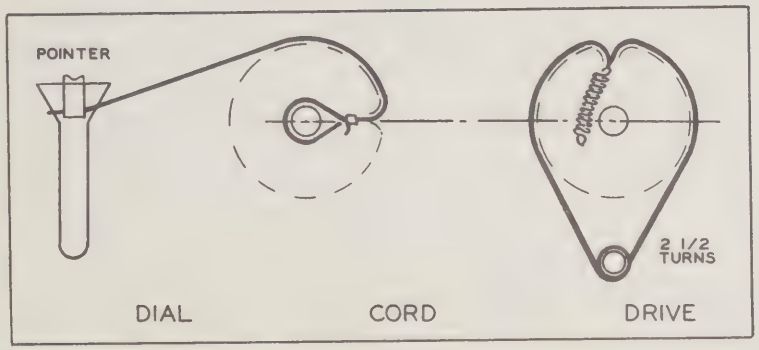
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
43	Loop Ant.	.5Ω	3.4Ω	32-4052-14		
44	Osc. Coil		6.8Ω	32-4153	14-1060	
45	Input IF	2.4Ω	10.3Ω	32-4151		
46	Output IF	23Ω		32-4152	16-6670	

DIAL LIGHT

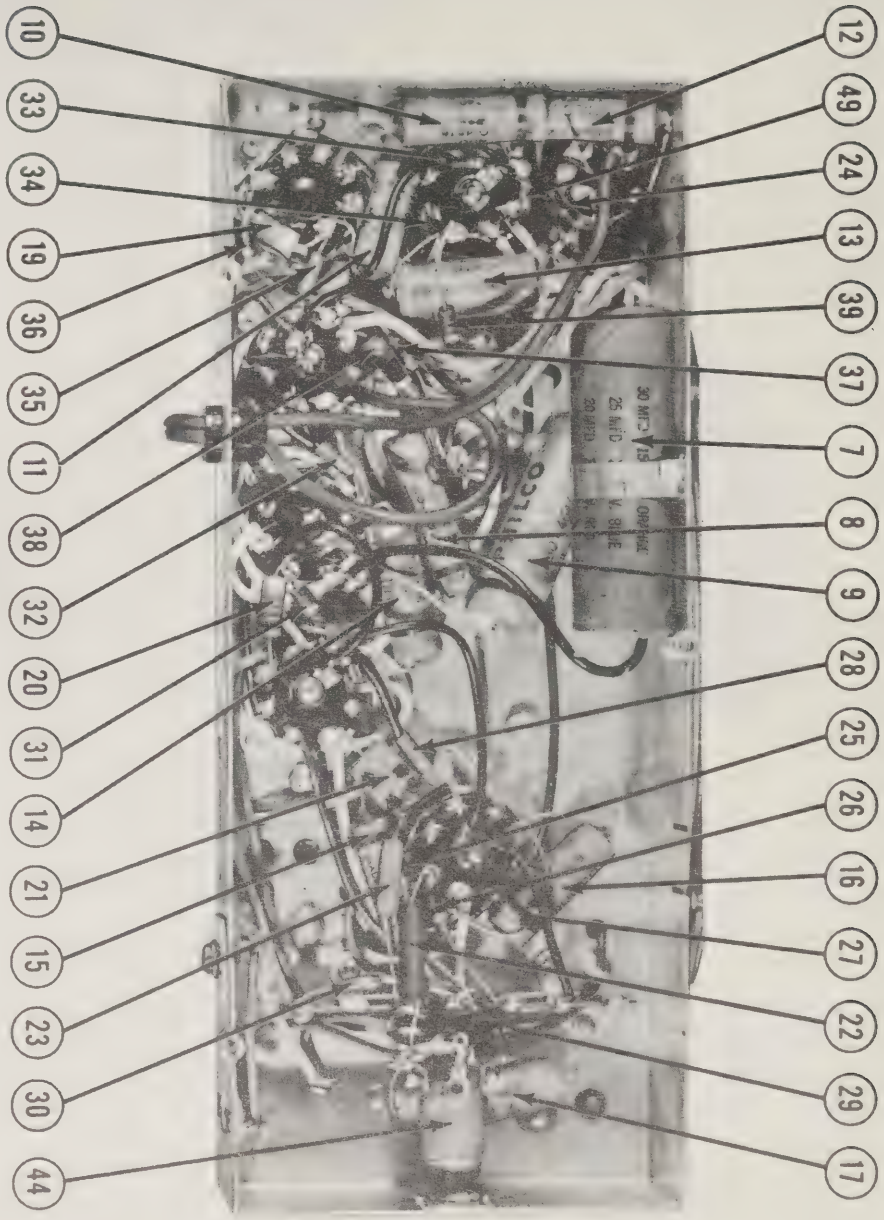
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
47	Bayonet	6-8	0.15	Brown	34-2068		Type #47

MISCELLANEOUS

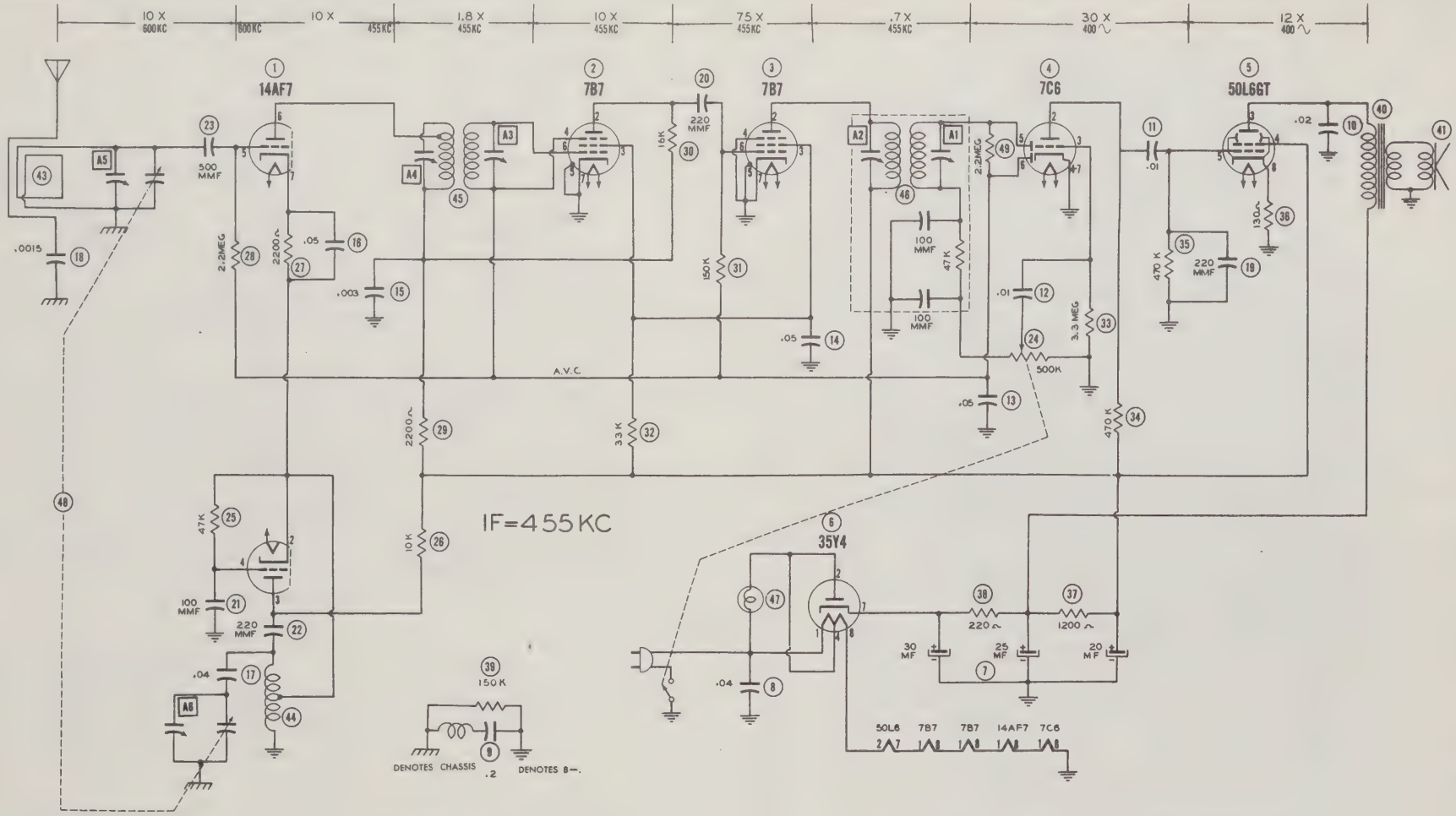
ITEM No.	PART NAME	PHILCO PART No.	NOTES
48	2 Gang Var. Cap.	31-2727	(45-505MMF, 40-185MMF)
	Cabinet	10629D	49-900-E (Less Scale)
	"	10629C	49-900-I (Less Scale)
	Dial Pointer	54-4253	
	Dial Scale	27-5916-2	49-900-E
	" "	27-5916-3	49-900-I
	Knob	54-4218-1	49-900-E
	"	54-4218	49-900-I



CHASSIS—BOTTOM VIEW



PHILCO MODELS 49-900-E, 49-900-I



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	19VAC	0V.	50VDC	-2.8VDC§	0V.	75VDC	4.6VDC	6.8VAC
2	7B7	25VAC	35VDC	35VDC	-.4VDC	0V.	-.4VDC	0V.	19VAC
3	7B7	32VAC	90VDC	35VDC	0V.	0V.	-.4VDC	0V.	25VAC
4	7C6	6.8VAC	55VDC	-.4VDC	0V.	-.4VDC	-.4VDC	00V.	0V.
5	50L6GT	0V.	85VAC	100VDC	90VDC	0V.	0V.	32VAC	5.2VDC
6	35Y4	117VAC	113VAC	90VDC	113VAC	0V.	90VDC	115VDC	85VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	23Ω	6Ω	100KΩ	47KΩ	4.9 Meg.	90KΩ	2.2KΩ	8Ω
2	7B7	30Ω	110KΩ	125KΩ	2.7 Meg.	0Ω	2.7 Meg.	0Ω	23Ω
3	7B7	38Ω	90KΩ	125KΩ	0Ω	0Ω	2.9 Meg.	0Ω	30Ω
4	7C6	8Ω	560KΩ	3.3 Meg.	0Ω	550KΩ	2.7 Meg.	0Ω	0Ω
5	50L6GT	INF.	90Ω	90KΩ	90KΩ	470KΩ	INF.	38Ω	130Ω
6	35Y4	110Ω	107Ω	90KΩ	107Ω	0Ω	90KΩ	90KΩ	90Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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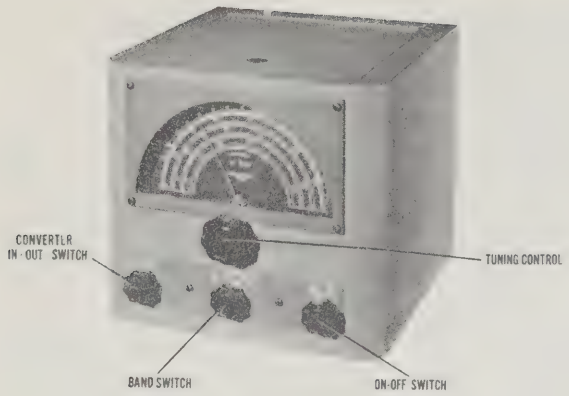
4819-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



RME MODEL HF10-20

TRADE NAME	RME, Model HF10-20
MANUFACTURER	Radio Mfg. Engineers, Inc., 300-306 1st Ave., Peoria, Ill.
TYPE SET	AC Operated Frequency Converter with Frequency of 7MC (Nominal) Out.
TUBES (FOUR)	Types, 6BA6 RF Amp., 6J6 Converter, VR150 Voltage Regulator, 5Y3G Rectifier.
POWER SUPPLY	110-120 Volts AC RATING .38 Amp. @ 117 Volts AC
SHORT WAVE	14.0-14.4MC. 21.0-21.5MC. 27.0-29.7MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	Direct	High side to center stator of tuning cap. Low side to chassis.	6.95MC	14.0-14.4 (Counter-clock-wise)	Tuning cap. fully open.	Across voice coil of associated receiver.	A1	Adjust for maximum output.
2	300Ω Carbon Res.	High side to either 20 meter antenna terminal. Low side to other terminal.	14.4MC	"	14.4MC	"	A2	Adjust for maximum output. Tune sig. gen. to 28.3MC. If signal is not heard, retune sig. gen. to 14.4 MC.and open A2 to next peak. Adjust for maximum output and recheck for image.
3	"	"	14.0MC	"	14.0MC	"	A3	Adjust for maximum output. Repeat Steps 2 & 3 until no further improvement can be made.
4	"	"	14.4MC	"	Tune for max-imum output.	"	A4,A5	Rock tuning cap. and adjust A4 & A5 for maximum output.
5	"	High side to either 15 meter ant. terminal. Low side to other terminal.	21.5MC	21.0-21.5MC (center position)	21.5MC	"	A6	Adjust for maximum output. Tune sig. gen. to 35.4MC. If signal is not heard, retune sig. gen. to 21.5 MC and open A6 to next peak. Adjust for maximum output and recheck for image.
6	"	"	21.0MC	"	21.0MC	"	A7	Adjust for maximum output. Repeat Steps 5 & 6 until no further improvement can be made.
7	"	"	21.5MC	"	Tune for max-imum output.	"	A8,A9	Rock tuning cap. and adjust A8 & A9 for maximum output.
8	"	High side to either 10 meter ant. terminal. Low side to other terminal.	29.7MC	27-29.7MC (clock-wise)	29.7MC	"	A10	Adjust for maximum output. Tune sig. gen. to 43.6MC. If signal is not heard, retune sig. gen. to 29.7 MC and open A10 to next peak. Adjust for maximum output and recheck for image.
9	"	"	27.0MC	"	27.0MC	"	A11	Adjust for maximum output. Repeat Steps 8 & 9 until no further improvement can be made.
10	"	"	29.7MC	"	Tune for max-imum output.	"	A12, A13	Rock tuning cap. and adjust A12 & A13 for maximum output.

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DATE 11/48-#4819-17 SET #49-FOLDER #17

PARTS LIST AND DESCRIPTIONS

RME MODEL HF10-20

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		RME PART No.	STANDARD REPLACEMENT		
1	RF Amp.	6BA6	6BA6	7BK	
2	Converter	6J6	6J6	7BF	
3	Voltage Reg.	VR150	VR150	4AJ	
4	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RME PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
5A	10	450		AF22J	UP1145	DY-2x10-45	EL210	■ Filter
B	10	450						▲ ■
6	.01	600		684-01	DT6S1	ST-6-01	TC-11	RF Bypass Power Supply
7	.01	600		684-01	DT6S1	ST-6-01	TC-11	Osc. Decoupling
8	.01	600		684-01	DT6S1	ST-6-01	TC-11	RF Screen Bypass
9	.01	600		684-01	DT6S1	ST-6-01	TC-11	RF Cathode
10	25	300						Osc. Feedback-Cer.-Note 1
11	10	300						Fixed Padder - " " "
12	40	300						Fixed Trimmer- " " "
13	30	300						" " " " "
14	25	300						Osc. Grid Cap. " " "
15	1000	500		1467-001	1W5D1	MW.5-21	1FM-21	Conv. Cathode Bypass
16	1.5	300						Osc. Coupling-5%
17	20	300						RF Coupling-See Note 1
18	100	500		1468-31	5W5T1	MO.5-31	1FM-31	RF Coupling
19	15	300					MS415	Fixed Padder-Note 2

Note 1-Negative temperature coefficient.
Note 2-Not used in all models.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RME PART No.	IRC PART No.	
20	18KΩ	½			Br.-Gray-Blk. Parasitic Suppressor
21	390Ω	1			Or.-White-Br. RF Cathode
22	15KΩ	½		BTS-15K	Br.-Grn.-Or. RF Screen
23	20KΩ	1		BTA-22K	Red-Blk.-Or. RF Plate Loadd
24	47KΩ	½		BTS-47K	Yl.-Vi.-Cr. Converter Grid
25	1000Ω	½		BTS-1000	Br.-Blk.-Red Conv. Cathode-See Note
26	4700Ω	½		BTS-4700	Yl.-Vi.-Red Osc. Grid
27	18KΩ	2		BT-2-18K	Br.-Gray-Or. Osc. Decoupling
28	3500Ω	10		AB-3500	Voltage Dropping

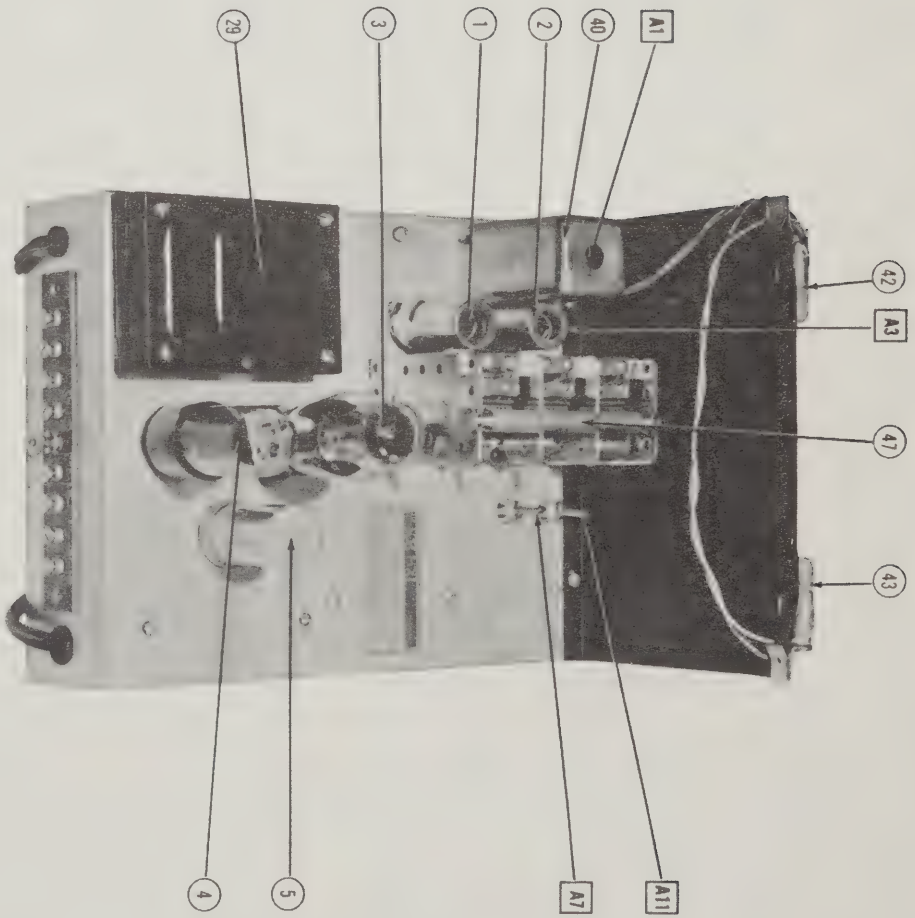
Note-Some models use two 2000Ω ½ W. resistors in parallel in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	RME PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
29	117V AC @ .38A	620V CT @ .05ADC	5.2V AC @ 2.0A	6.6V AC @ 1.0A		P-8477#	T22R04	P-2957#

#Add series resistor to reduce plate voltage.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000	REPLACEMENT DATA: RME PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
30	.05 A.	565Ω	20 Henries		C-1003	T20C53	C-2987	

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: MEISSNER PART No.
	Ant. Coils				
31	20 Meter	0Ω	.1Ω		
32	15 Meter	0Ω	0Ω		
33	10 Meter	0Ω	0Ω		
	RF Coils				
34	20 Meter		0Ω		
35	15 Meter		0Ω		
36	10 Meter		0Ω		
	Osc. Coils				
37	20 Meter		0Ω		
38	15 Meter		0Ω		
39	10 Meter		0Ω		
40	IF Coil		0Ω		
41	Osc. Plate Choke		42Ω		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA:	INSTALLATION NOTES
42	Bayonet	6-8	0.15	Brown			Type 47
43	"	"	"	"			" "

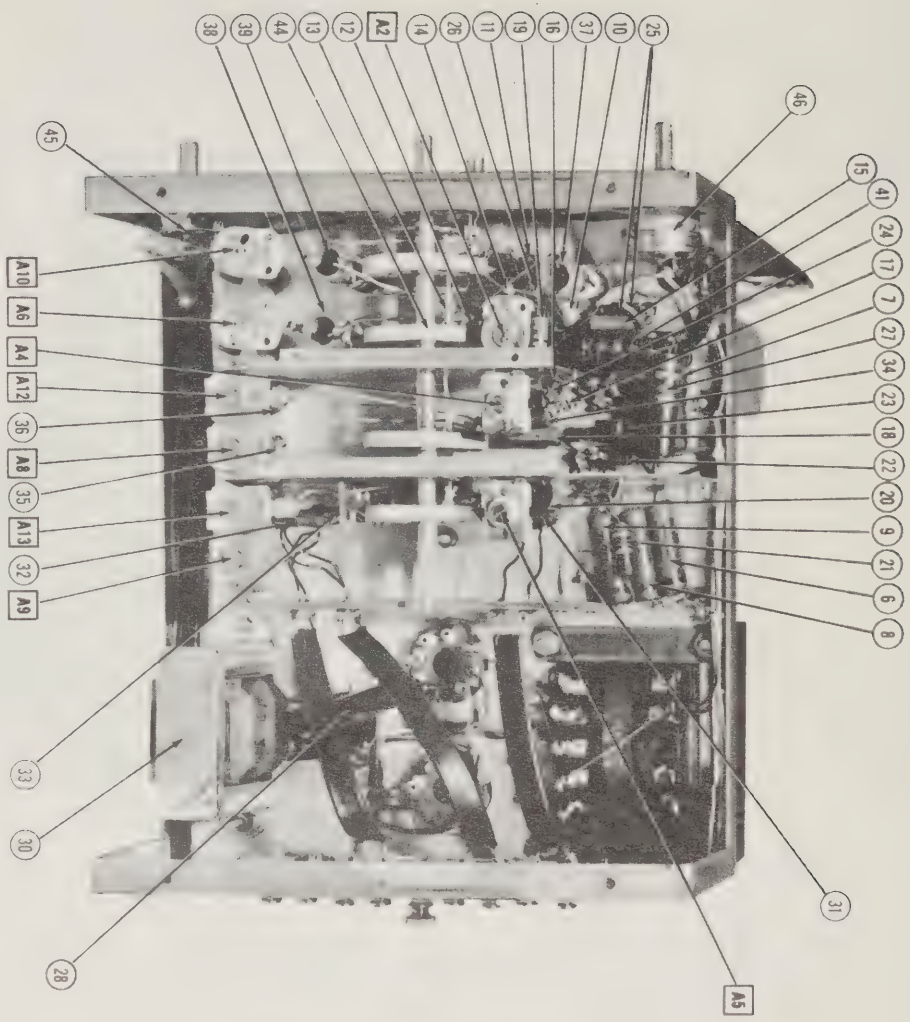
MISCELLANEOUS

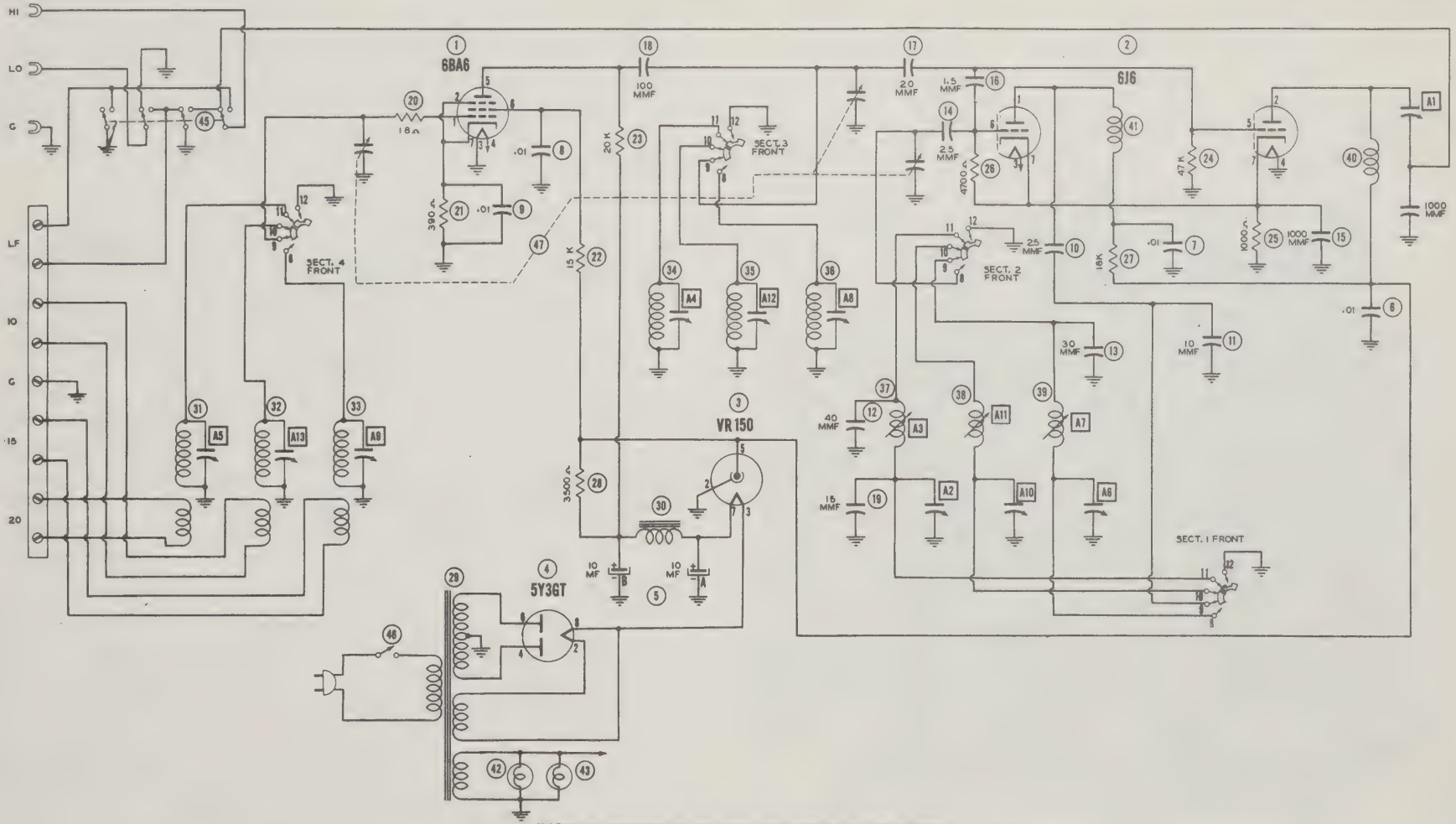
ITEM No.	PART NAME	RME PART No.	NOTES
44	Switch		Band
45	"		Changeover
46	"		Power On-Off
47	3 Gang Var. Cap.		Tuning

EXTERNAL CONNECTIONS

The output cable should be connected to the antenna terminal of the receiver. The cable has two shielded leads and a ground lead each ending in a terminal lug. On receivers which have provision for doublet operation, such as the RME-45 and the RME-84 the blue coded lead must be connected to the antenna terminal farthest from the ground terminal. This is the hot side of the converter output. The red lead, or low side, must be connected to the antenna terminal nearest to the ground terminal. The ground braid should be connected to the receiver ground. On receivers not equipped for doublet operation, the blue lead should be connected to the antenna terminal and the red and ground (shield) leads should be connected to the receiver ground. This lead is coded white. Unless the above instructions are followed, the changeover switch will not operate properly.

CHASSIS—BOTTOM VIEW





VOLTAGE AND RESISTANCE READINGS TAKEN WITH BANDSWITCH ON 14MC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	0V.	3.2VDC	0V.	6.6VAC	195VDC	105VDC	3.2VDC	-
2	6J6	65VDC	150VDC	6.6VAC	0V.	0V.	-3VDC§	6VDC	-
3	VR150	0V.	0V.	320VDC	0V.	150VDC	0V.	320VDC	0V.
4	5Y3GT	0V.	320VDC	0V.	310VAC	0V.	310VAC	0V.	320VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	.1Ω	390Ω	0Ω	.1Ω	360KΩ	390Ω	-	-
2	6J6	370KΩ	350KΩ	.1Ω	0Ω	47KΩ	5.7KΩ	1KΩ	-
3	VR150	INF.	0Ω	350KΩ	INF.	350KΩ	INF.	350KΩ	INF.
4	5Y3GT	INF.	350KΩ	INF.	200Ω	INF.	190.	INF	350KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS. THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - No signal applied for voltage measurements.

REGAL MODEL BP48
BATTERY OPERATED

REGAL MODEL BP48
BATTERY OPERATED

REGAL MODEL BP48

TRADE NAME	Regal, Model BP48
MANUFACTURER	Regal Electronics Corp., 605 W. 130th St., New York, N.Y.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output
POWER SUPPLY	1.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	240MA @ 1.5 Volts and 11 MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to large stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output.
2		Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 11/48-#4819-18 SET #49-FOLDER #18

PARTS LIST AND DESCRIPTIONS

REGAL MODEL BP48

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		REGAL PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	2nd Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	REGAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
5	16	100	60-111	PRS150-16	BR1615	M-16-150	UT161	Power Supply Bypass
6	.005	150		484-005	ZYW4D5	TST-2-006	68P30	Output Plate Bypass
7	.002	400	50-110	484-002	ZYW4D2	TST-6-002	68P27	Audio Coupling
8	.002	400	50-110	484-002	ZYW4D2	TST-6-002	68P27	" "
9	.05	200	50-109		ZYW1S5	TST-2-05		AF Screen Bypass
10	.05	200	50-109		ZYW1S5	TST-2-05		Decoupling
11	.05	200	50-109		ZYW1S5	TST-2-05		AVC Filter
12	100	500	55-116	1468-0001	5W5T1	MO.5-31	1FM-31	AF Plate Bypass
13	250	500	55-117	1468-00025	5W5T25	MO.5-325	1FM-325	Diode RF Filter
14	100	500	55-116	1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	REGAL PART No.	IRC PART No.	CLAROSTAT PART No.	
15	500KΩ	½	20-105		15/16-60-2	Volume Control

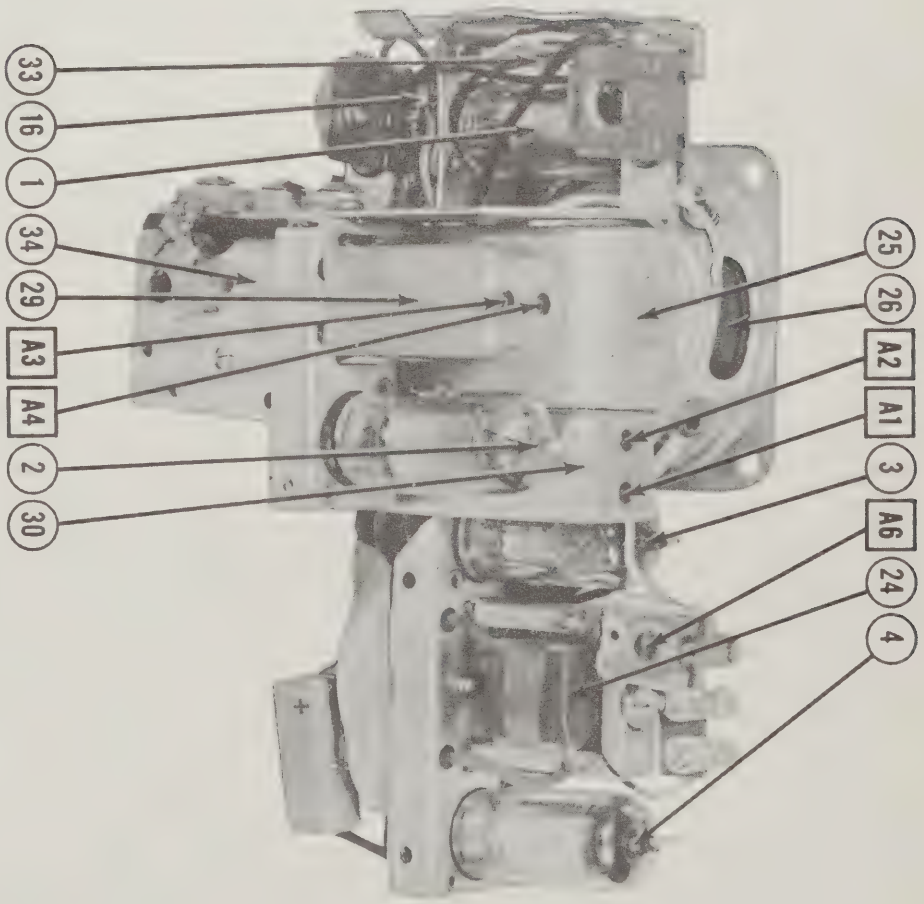
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	REGAL PART No.	IRC PART No.	
16	100KΩ	½	65-107	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
17	2.2 Meg.	½	65-110	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
18	10 Meg.	½	65-129	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
19	4.7 Meg.	½	65-128	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
20	1 Meg.	½	65-126	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
21	2.2 Meg.	½	65-110	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
22	560Ω	½	65-133	BTS-560	Grn.-Blue-Br. Bias
23	4700Ω	½	65-104	BTS-4700	Yl.-Vi.-Red Decoupling

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REGAL PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
24	9000Ω	4.3Ω	315Ω	.5Ω	Part of 110-109	A-3329**	T22S47#	A-2927#	#Bend mounting tabs down, file out slots and mount on original bracket. **Remove horizontal frame from A-3329 and mount vertically in frame on original.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA REGAL PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.				
25	PM	4.3Ω	110-109			
	CONE DIA.	VC DIA.				
26	4"	9/16"				

R F COILS

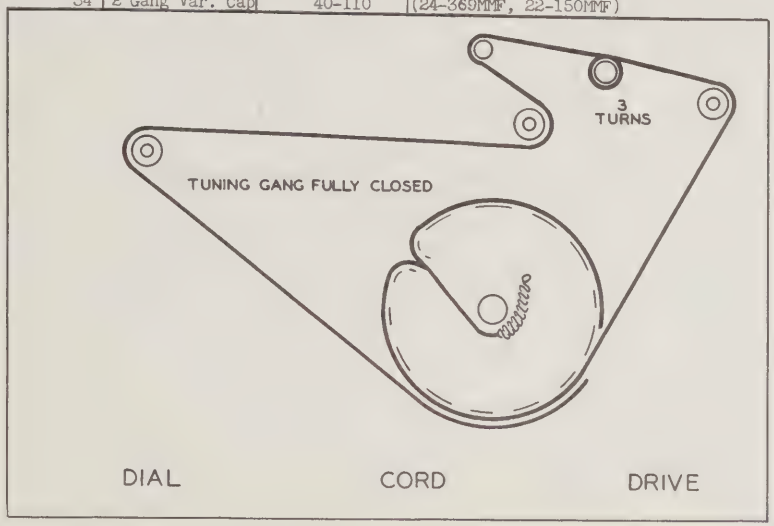
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA REGAL PART No.	REPLACEMENT DATA MEISSNER PART No.	
27	Loop Ant.		2.9Ω	30-138		
28	Osc. Coil	1.7Ω	7.5Ω	30-161		
29	Input IF	20Ω	20Ω	30-168		
30	Output IF	18Ω	19Ω	30-162	16-6669	

BATTERIES

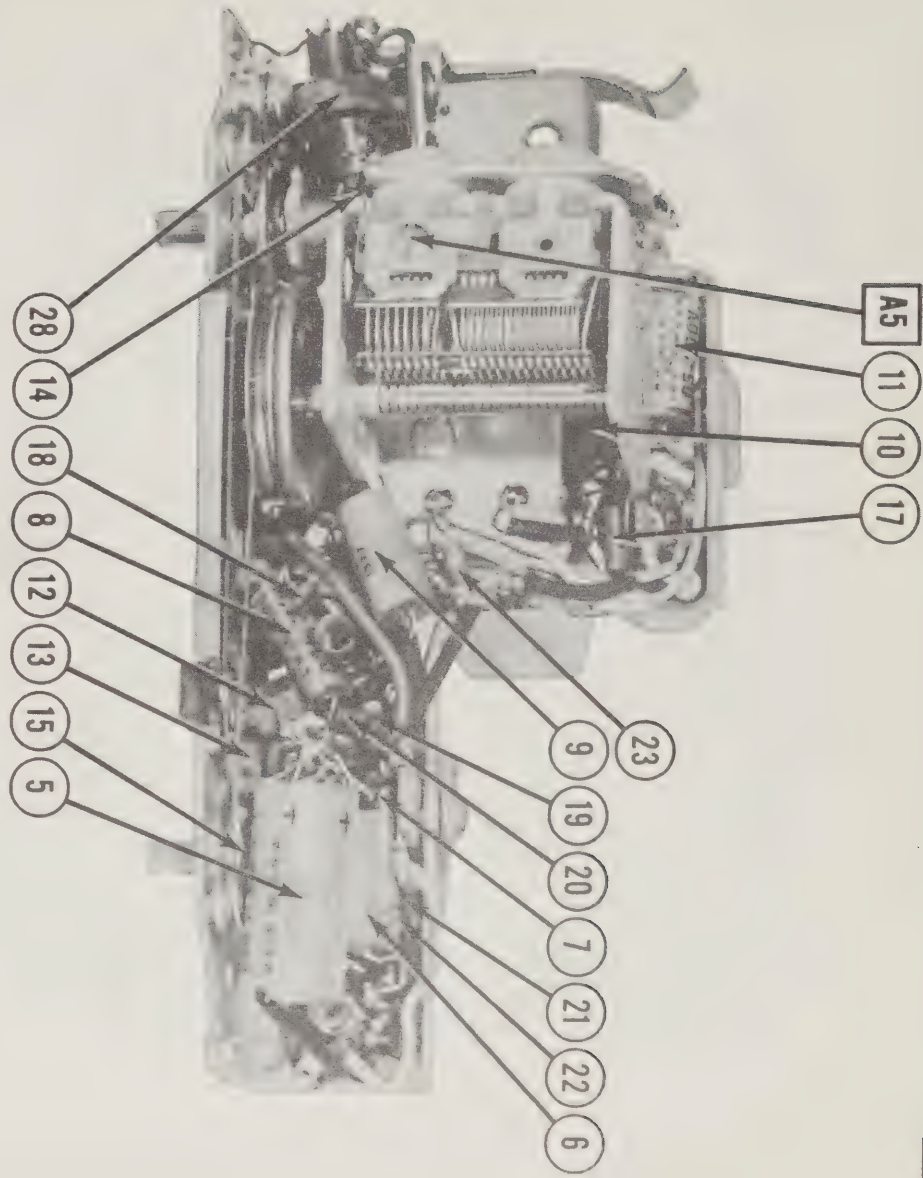
ITEM No.	VOLTAGE	REGAL PART No.	REPLACEMENT DATA EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
31	1.5V "A"		950			2R			
32	67.5V"B"			467			XX45		

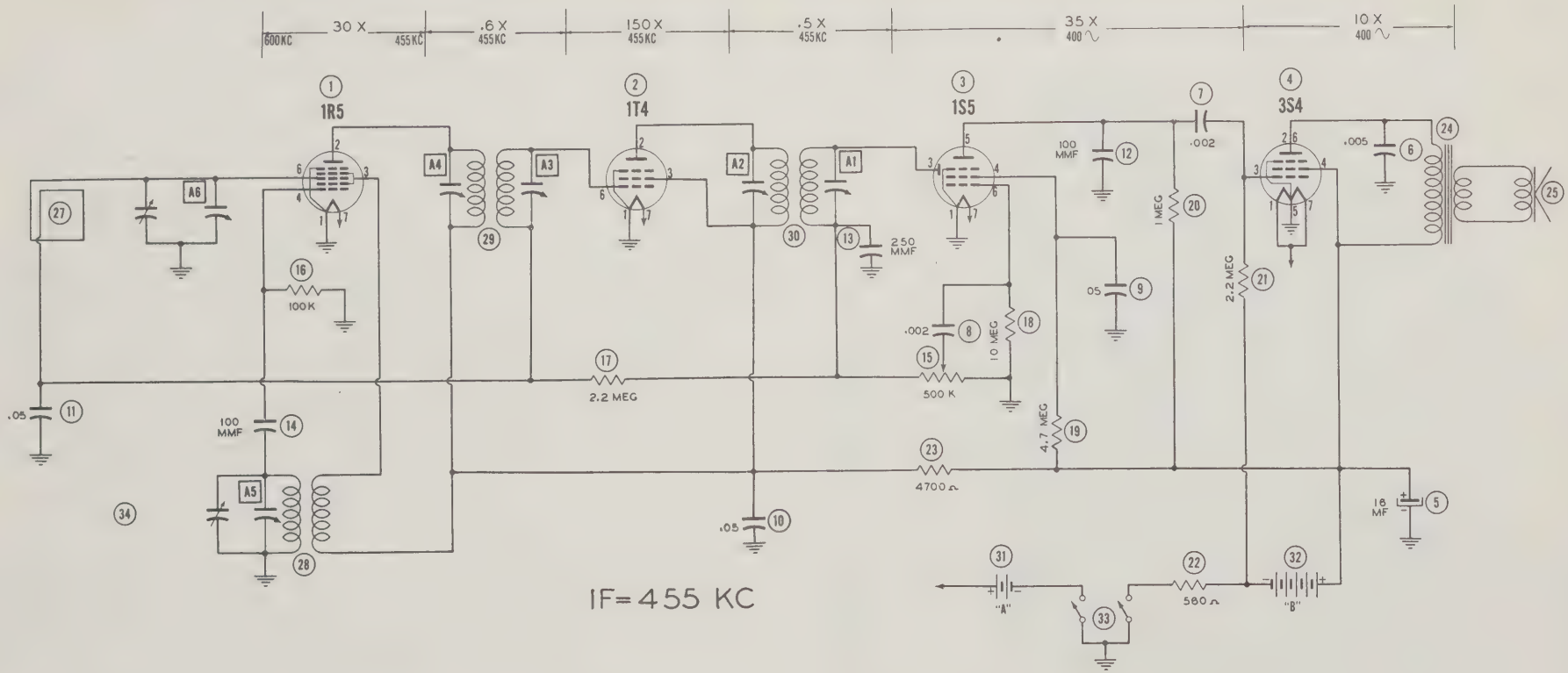
MISCELLANEOUS

ITEM No.	PART NAME	REGAL PART No.	NOTES
33	Switch	95-110	On-Off
34	2 Gang Var. Cap	40-110	(24-369MMF, 22-150MMF)



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	44VDC	44VDC	-5VDC§	0V.	0V.	1.4VDC
2	1T4	0V.	44VDC	44VDC	0V.	0V.	0V.	1.4VDC
3	1S5	0V.	-.8VDC	-.2VDC	10VDC	13VDC	0V.	1.4VDC
4	3S4	1.4VDC	57VDC	-1.2VDC	60VDC	0V.	57VDC	1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	300KΩ	300KΩ	100KΩ	0Ω	2.7 Meg.	*
2	1T4	0Ω	300KΩ	300KΩ	2.7 Meg.	0Ω	2.7 Meg.	*
3	1S5	0Ω	750Ω	220KΩ	4.5 Meg.	1 Meg.	10 Meg.	*
4	3S4	0Ω	300KΩ	2 Meg.	300KΩ	0Ω	3 MΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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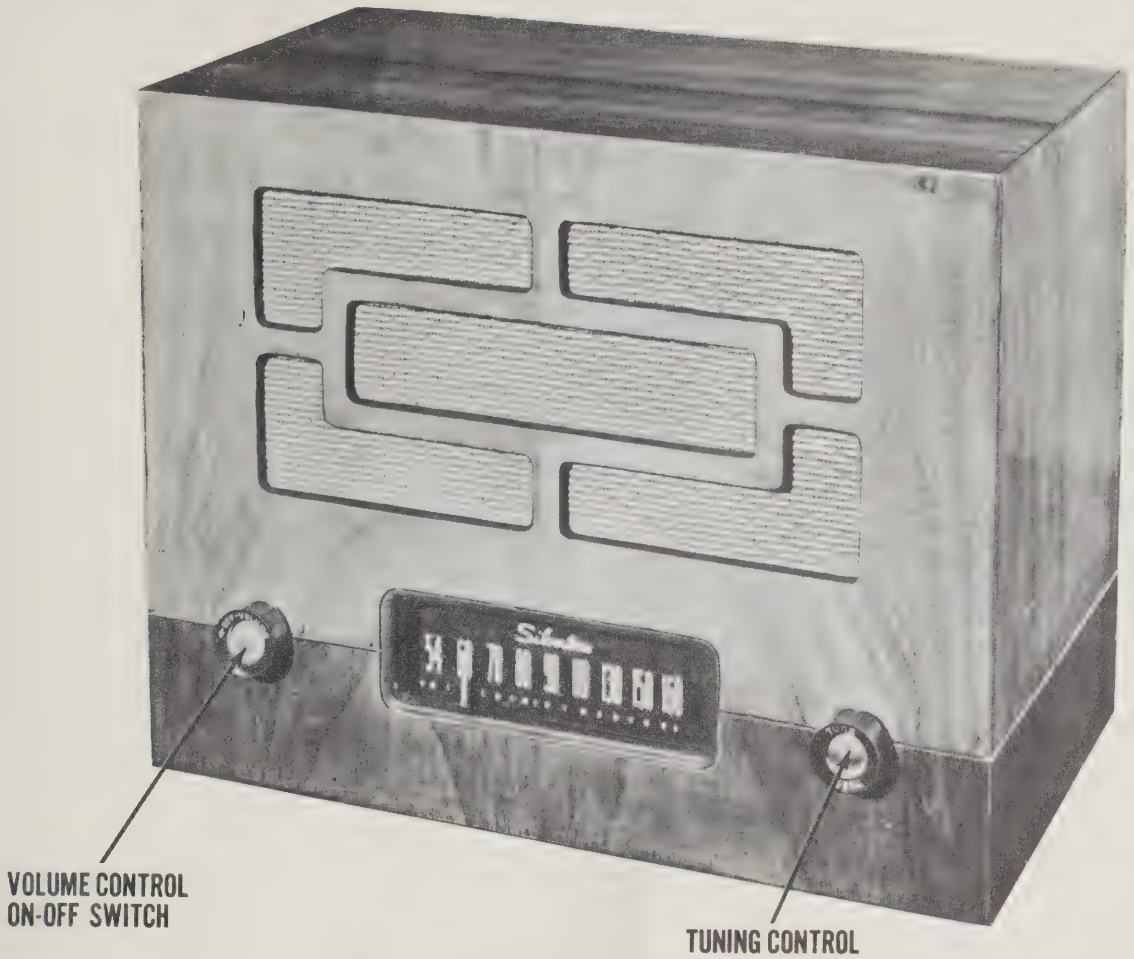
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE MODEL
8051 (Ch. 101.839)



SILVERTONE MODEL
8051 (Ch. 101.839)

SILVERTONE MODEL 8051

TRADE NAME	Silvertone, Model 8051 (Ch. 101.839)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1650KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) of 14Q7. Low side to B-.	455KC	Tuning cap. fully closed	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to B-.	1650KC	Tuning cap. fully open.	"	A5	Adjust for maximum output. The trimmer opposite A5 is a factory adjustment and ordinarily need not be adjusted.
3	200MMFD	"	1410KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 8051

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	7C6	7C6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	R64754	PRSA150/40-40	EDL4415	DSB-2x40-150	TA440	Filter-Red
B	40	150						" -Green
7	.05	600		684-05	DT6S5	ST-6-05	TC-15	Line Filter
8	.1	400		484-.1	DT4P1	ST-4-1	72P2	Line Isolation
9	.05	400		484-05	DT4S5	ST-4-05	TC-15	Output Plate Bypass
10	.005	600		684-005	DT6D5	ST-6-005	TC-25	Audio Coupling
11	.005	600		684-005	DT6D5	ST-6-005	TC-25	" "
12	.05	200		484-05	DT2S5	ST-4-05	TC-15	RF Bypass Pwr. Supply
13	.05	200		484-05	DT2S5	ST-4-05	TC-15	AVC Filter
14	.01	600		684-01	DT6S1	ST-6-01	TC-11	Osc. Tuning Cap. Isol.
15	100	300	R64912	1468-0001	5W5T1	MO.5-31	1FM-31	Diode RF Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	½	R64756	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

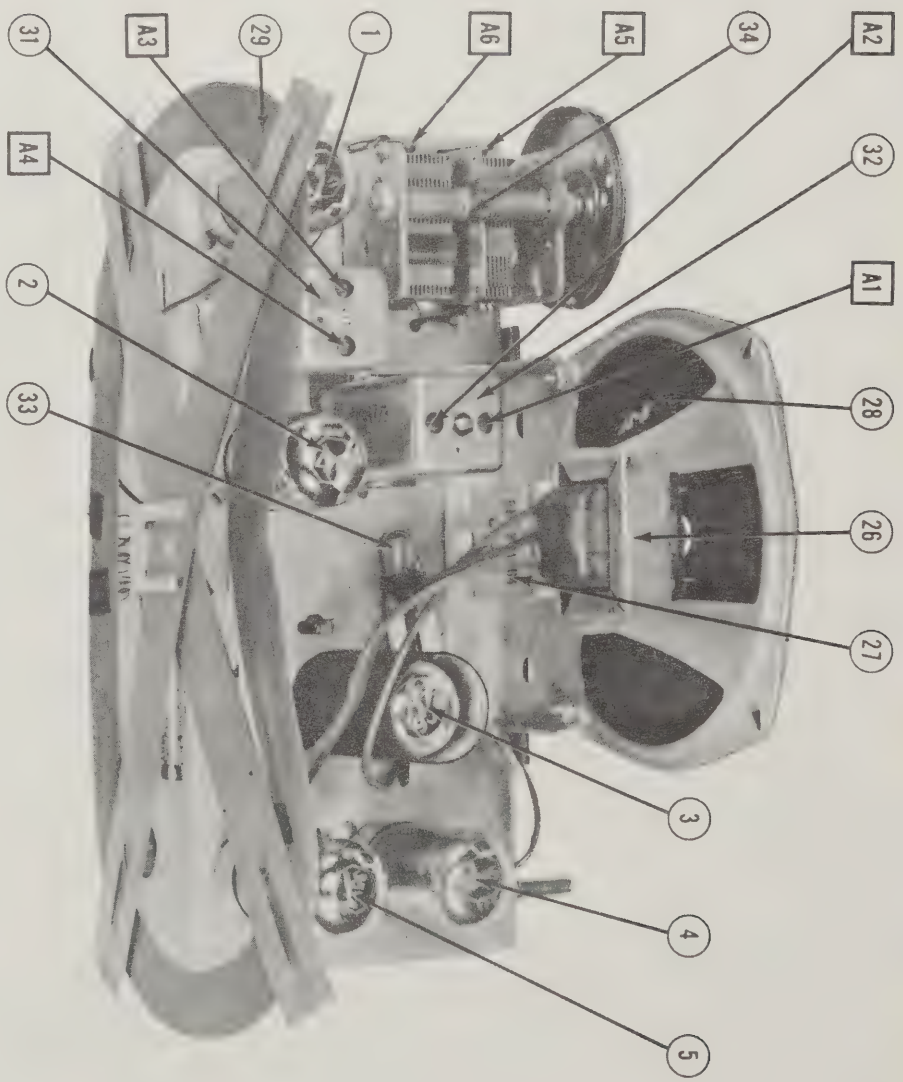
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
17	18KΩ	½		BTS-18K	Br.-Gray-Or. Osc. Grid
18	3900Ω	½		BTS-3900	Or.-White-Red " "
19	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
20	220KΩ	½		BTS-220K	Red-Red-Yl. Tone Compensation
21	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	1200Ω	1		BTA-1200	Br.-Red-Red Filter
24	25Ω	1	R40232		Red-Grn.-Blk. Rect. Ballast
25	270Ω	½		BW-½-270	Red-Vi.-Br. Dial Light Shunt-See Note

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	INSTALLATION NOTES
26	2250Ω	3.5Ω	375Ω tapped @ 18Ω	1.0Ω	R-64765	A-3330‡		A-3031‡	‡Bend mounting tabs down file out slots and mount on original brackets.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
27	FIELD / PM	VC IMP. / 3.5Ω	R64764	ST-105† Mod. P5-X	52A1	†Use adapter baffle.
28	CONE DIA. 5-1/8"	VC DIA. 9/16"				

R F COILS

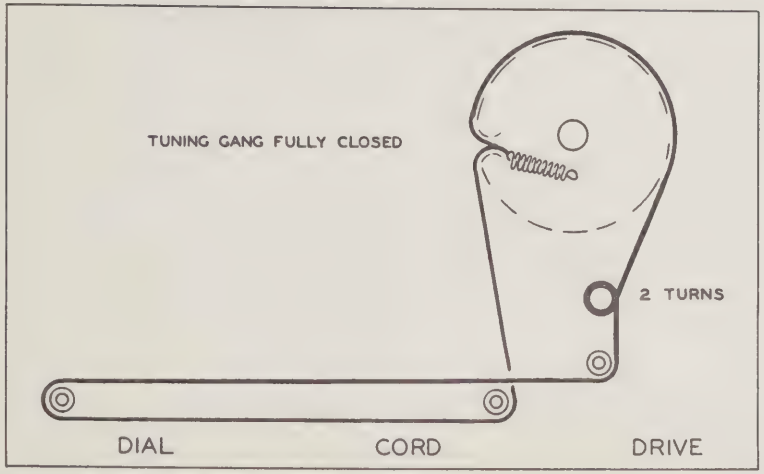
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	MEISSNER PART No.	
29	Loop Ant.	0Ω	2Ω	R65149		
30	Osc. Coil		9.3Ω	R64755	14-1060	
31	Input IF	20Ω	19Ω	R64772	16-6666	
32	Output IF	22Ω		R64773	16-6667*	*Connect 2.2 Meg. resistor from junction of black lead from 1st IF Trans. and tuning cap. frame to black lead of replacement trans. Connect 150KΩ res. from high side of vol. control to black lead of replacement transformer.

DIAL LIGHT

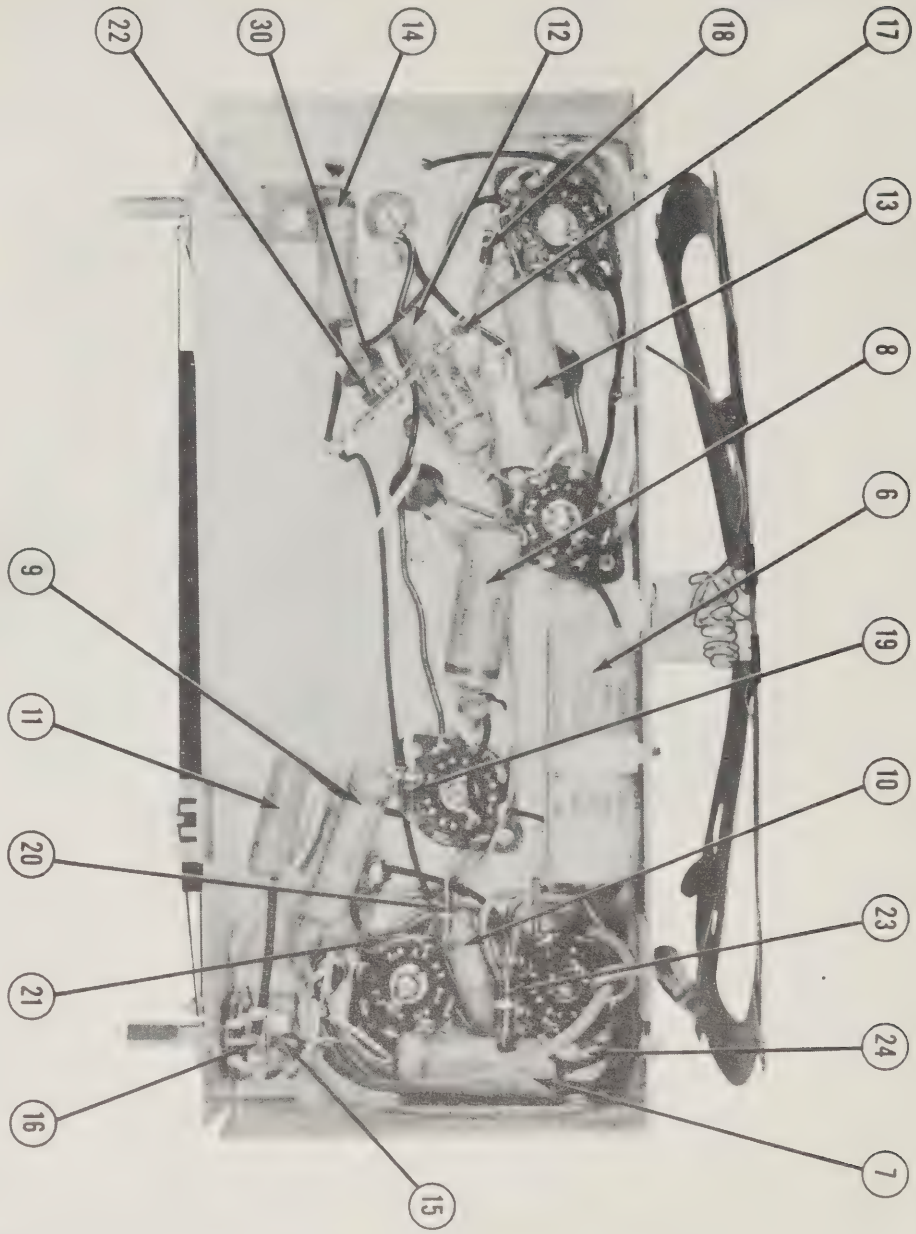
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SILVERTONE PART No.		INSTALLATION NOTES
33	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
34	2 Gang Var. Cap.	R64753	(21-442MMF, 21-149MMF)
	Dial	R64770	
	Knob	R62712	Tuning
	"	R62713	On/Off-Volume
	Dial Pointer	R64761	



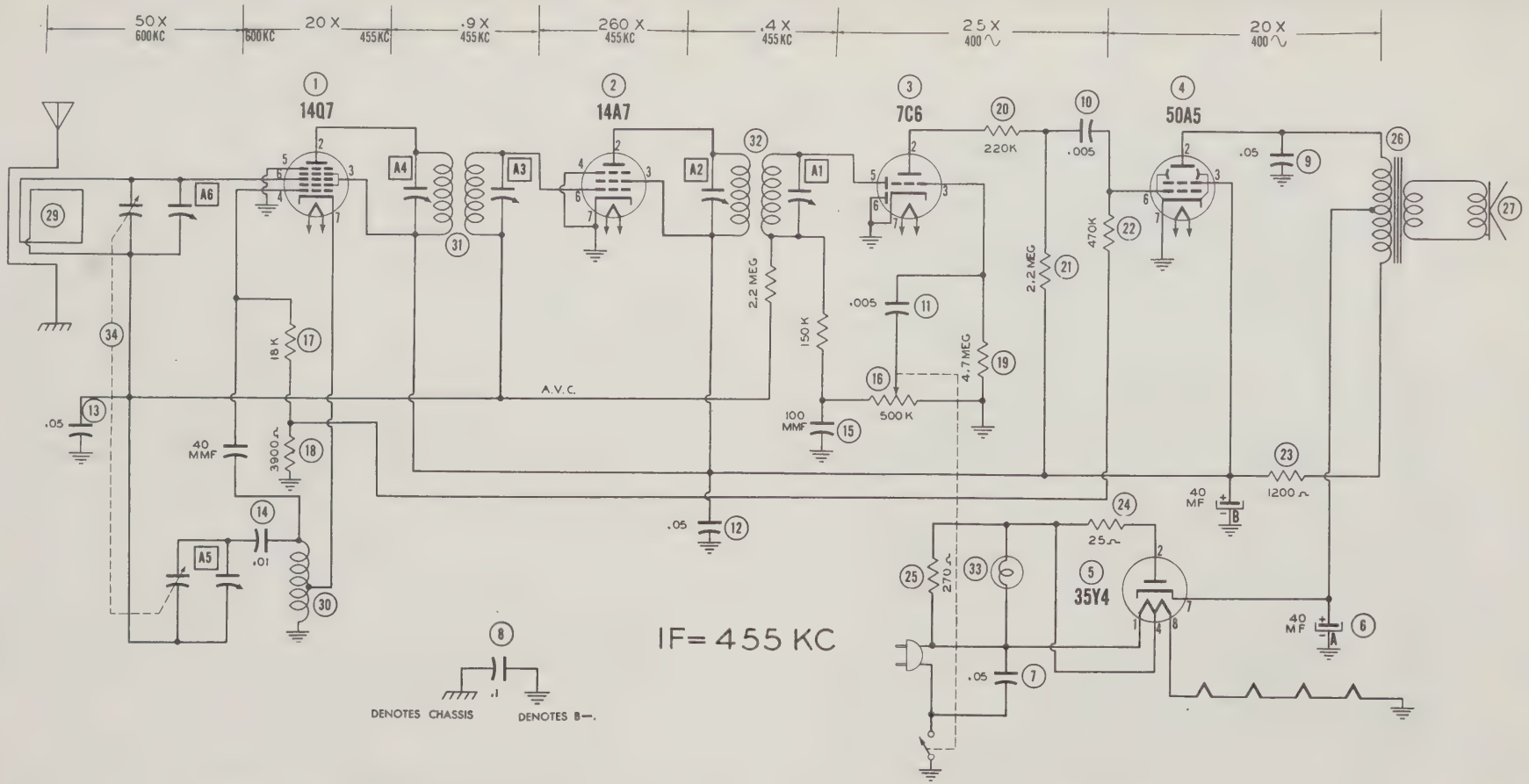
CHASSIS—BOTTOM VIEW



SILVERTONE MODEL 8051

SILVERTONE MODEL 8051

DATE 11/48-#4819-19 SET #49-FOLDER #19



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	20VAC	80VDC	80VDC	-6.4VDC§	0V.	-.8VDC	0V.	6.7VAC
2	14A7	33VAC	80VDC	80VDC	0V.	0V.	-.4VDC	0V.	20VAC
3	7C6	0V.	5.6VDC	-.4VDC	0V.	-.4VDC	0V.	0V.	6.7VAC
4	50A5	33VAC	100VDC	80VDC	40VDC	0V.	-1.4VDC	0V.	85VAC
5	35Y4	117VAC	112VAC	112VAC	112VAC	80VDC	110VDC	110VDC	85VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	20Ω	60KΩ	60KΩ	22KΩ	0Ω	2.8 Meg.	1Ω	7Ω
2	14A7	36Ω	60KΩ	60KΩ	0Ω	0Ω	2.8 Meg.	0Ω	20Ω
3	7C6	0Ω	2.5 Meg.	4.7 Meg.	0Ω	650KΩ	0Ω	0Ω	7Ω
4	50A5	36Ω	60KΩ	60KΩ	3 Meg.	INF.	480KΩ	0Ω	85Ω
5	35Y4	110Ω	130Ω	105Ω	105Ω	60KΩ	60KΩ	60KΩ	85Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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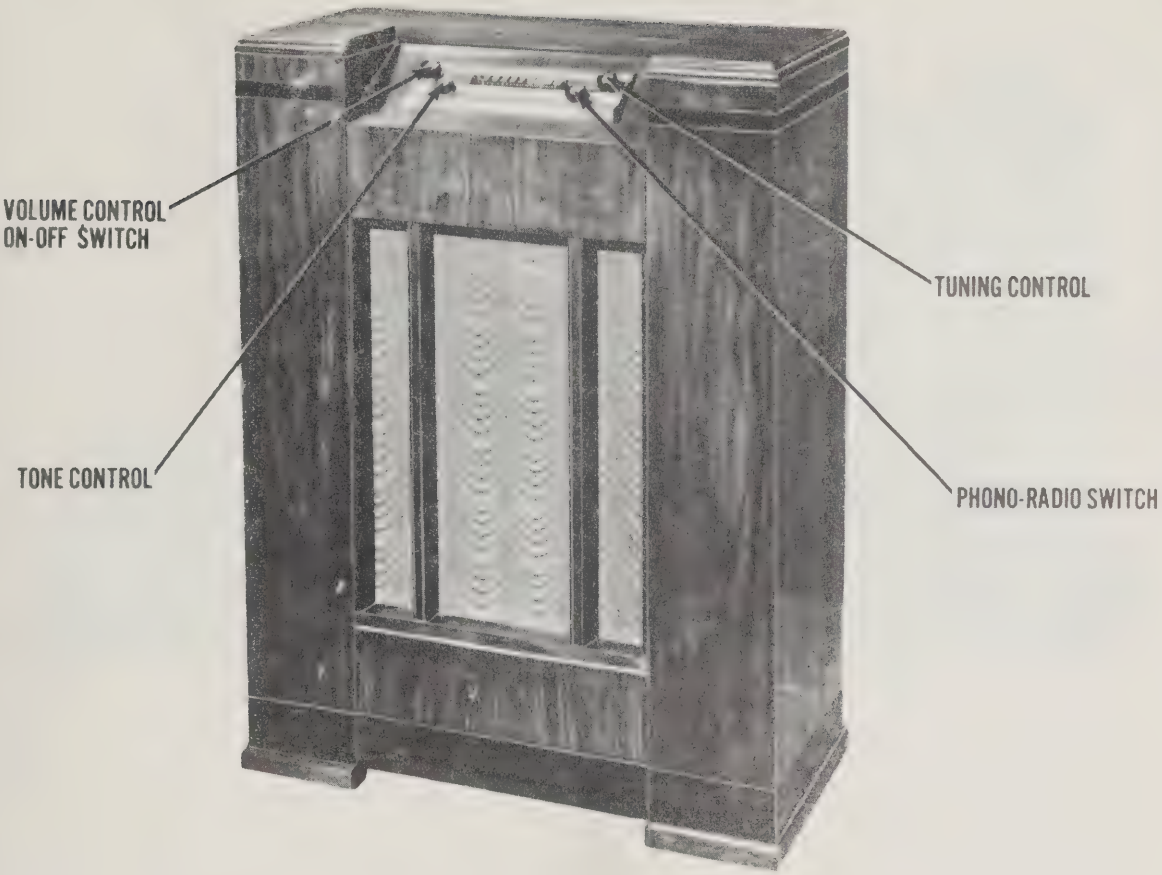
4819-19

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE MODEL
8090 (Ch. 101.821)



SILVERTONE MODEL
8090 (Ch. 101.821)

SILVERTONE MODEL 8090

TRADE NAME	Silvertone, Model 8090 (Ch.101.821)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan St., Chicago, Illinois
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Ant.
TUBES (Five)	Types 14Q7 Converter, 14A7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output 35Y4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .25 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1MFD.	High side to pin 6 (grid) of 14Q7. Low side to B-.	455KC	Tuning cap. fully closed.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	200MMFD.	High side to external ant. clip. Low side to B-.	1650KC	Tuning cap. fully open.	Across voice coil	A5	Adjust for maximum output.
3	200MMFD.	"	1410KC	Tune for maximum output.	Across voice coil	A6	" " " "

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DATE 11/48-#4819-20 SET #49-FOLDER #20

PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 8090

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	7C6	7C6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	R60416	AF88D4	UP4415C	DY-305	EL-352	■ Filter
B	40	150						▲ Filter
C	20	25						Cathode Bypass
7	.05	600		684-05	DT6S5	ST-6-05	TC-15	Line Filter
8	.1	400		484-1	DT4P1	ST-4-1	72P2	Line Isolation
9	.02	400		484-02	DT4S2	ST-4-02	TC-12	Output Plate Bypass
10	.005	600		684-005	DT6D5	ST-6-005	TC-25	Audio Coupling
11	.005	600		684-005	DT6D5	ST-6-005	TC-25	" "
12	.001	600		684-001	DT6D1	ST-6-001	TC-21	Tone Compensation
13	.02	200		484-02	DT4S2	ST-4-02	TC-12	" "
14	.1	200		484-.1	DT4P1	ST-2-1	TC-1	AF Plate Decoupling
15	.05	600		684-05	DT6S5	ST-6-05	TC-15	Phono Isolation
16	.05	200		484-05	DT2S5	ST-4-05	TC-15	AVC Filter
17	.05	200		484-05	DT2S5	ST-4-05	TC-15	AVC Filter
18	.05	200		484-05	DT2S5	ST-4-05	TC-15	RF Bypass Power Supply
19	.01	600		684-01	DT6S1	ST-6-01	TC-11	Tuning Cap. Isolation
20	.05	600		684-05	DT6S5	ST-6-05	TC-15	Converter Bias Bypass
21	.001	600		684-001	DT6D1	ST-6-001	TC-21	External Ant. Coupling
22	100	500		1468-0001	5W5T1	MO.5-31	1FM-31	AF Plate Bypass
23	50	500		1468-00005	5W5Q5	MO.5-45	1FM-45	Oscillator Grid Cap.

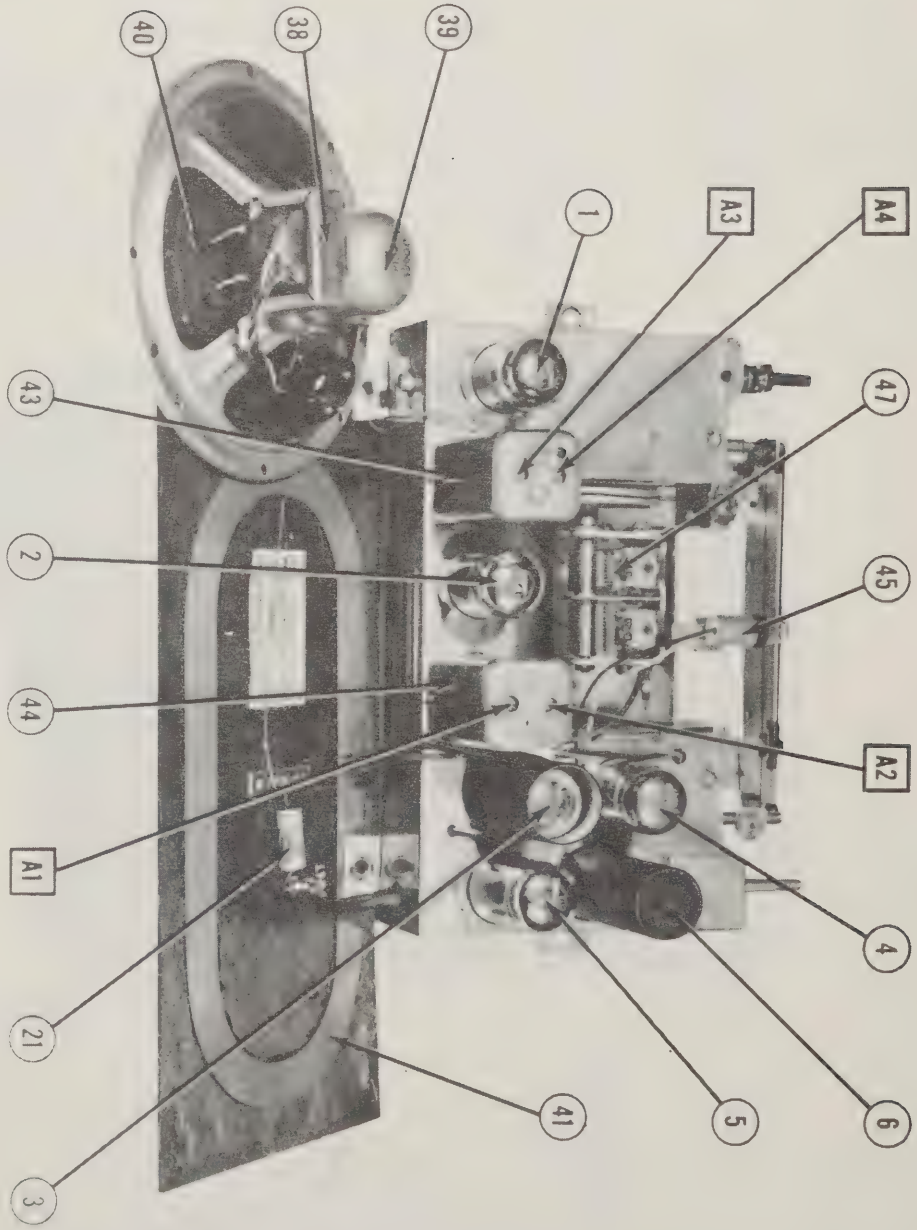
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ	½	R62371	D18-133X	T-88	Volume Control tapped @ 50KΩ
B	Shaft		Not Req.	A	Not Req.	Attach to 24A per instructions.
C	Switch		" "	41	SW-A	" " " "
25A	2 Meg.	½	R62393	D13-139	M-66-Z	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 25A per instructions.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
26	22KΩ	½		BTS-22K	Red-Red-Or. AVC Network
27	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. " "
28	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
29	100Ω	½		BW-½-100	Br.-Blk.-Br. Conv. Bias
30	22KΩ	½		BTS-22K	Red-Red-Or. Tone Compensation
31	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
32	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AF Plate Load
33	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
34	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
35	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
36	1200Ω	1		BTA-1200	Br.-Red-Red Filter
37	25Ω	1	R40232	BW-1-27	Red-Grn.-Blk. Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
38	2300Ω	3.5Ω	407Ω tap @ 21Ω	100Ω	R62602	A-3330 †		A-3031 †	† Bend mounting tabs down. File out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-108		
39	PM	3.5Ω	R62600	Mod. P6-X	6A15	
	CONE DIA.	VC DIA.				
40	6¼"	9/16"				

R F COILS

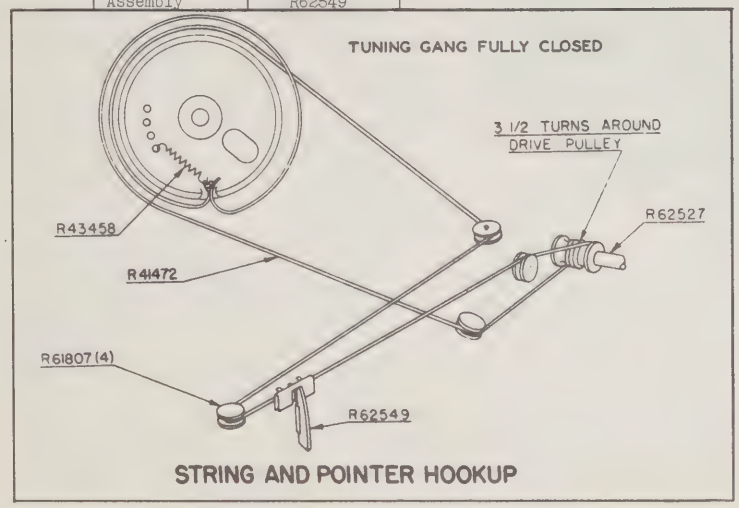
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
41	Loop Ant.	.1Ω	2.2Ω	R63189		
42	Osc. Coil		6.5Ω	R61107	14-1060	
43	Input IF	23.1Ω	23.4Ω	R62513	16-6658	
44	Output IF	14Ω		R60418	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
45	Bayonet	6-8V	0.15A	Brown			Type #47

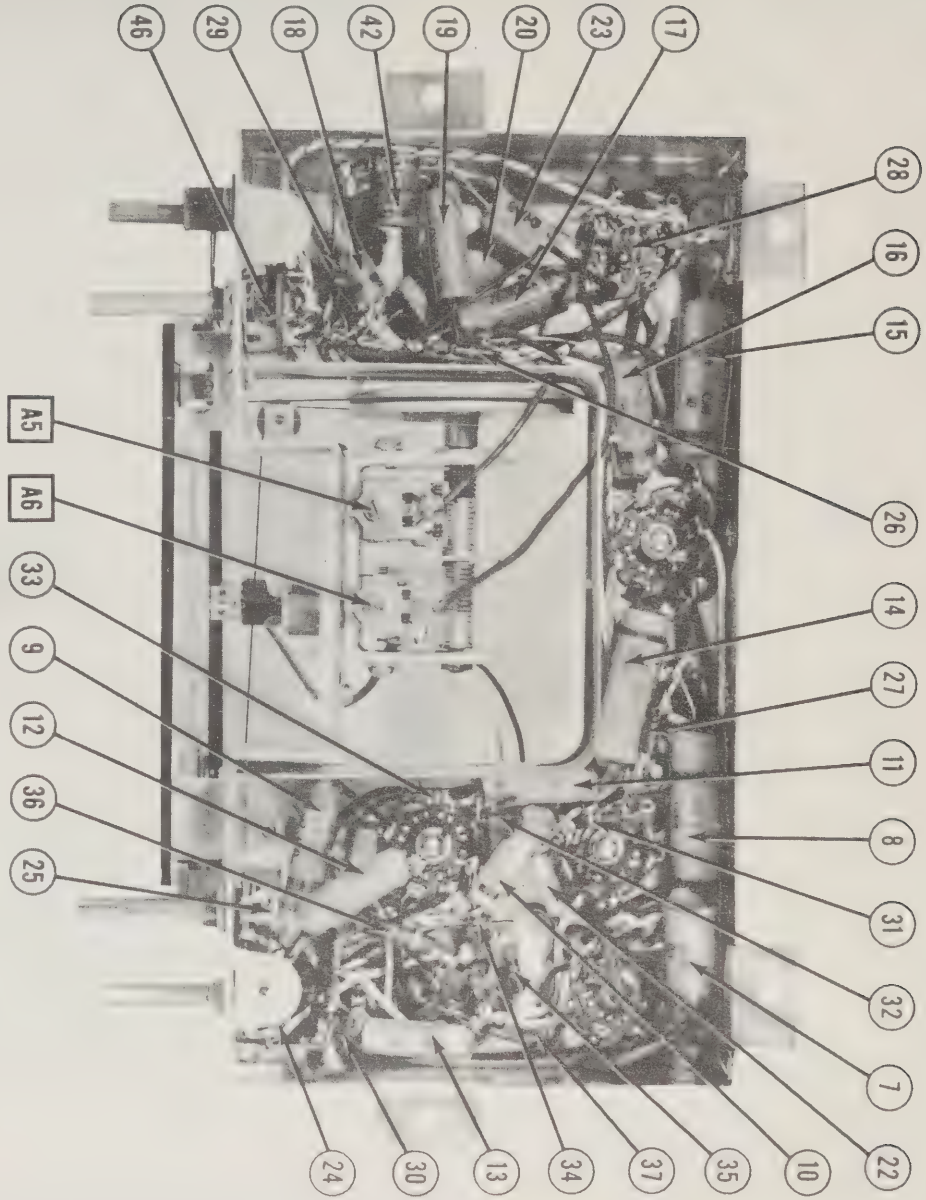
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
46	Switch	R62394	Radio-Phono
47	2 Gang Var.Cap.	R61100	(38-493 MMF, 30-195 MMF)
	Dial Assembly	R62397	
	Dial Pointer Assembly	R62549	



STRING AND POINTER HOOKUP

CHASSIS—BOTTOM VIEW



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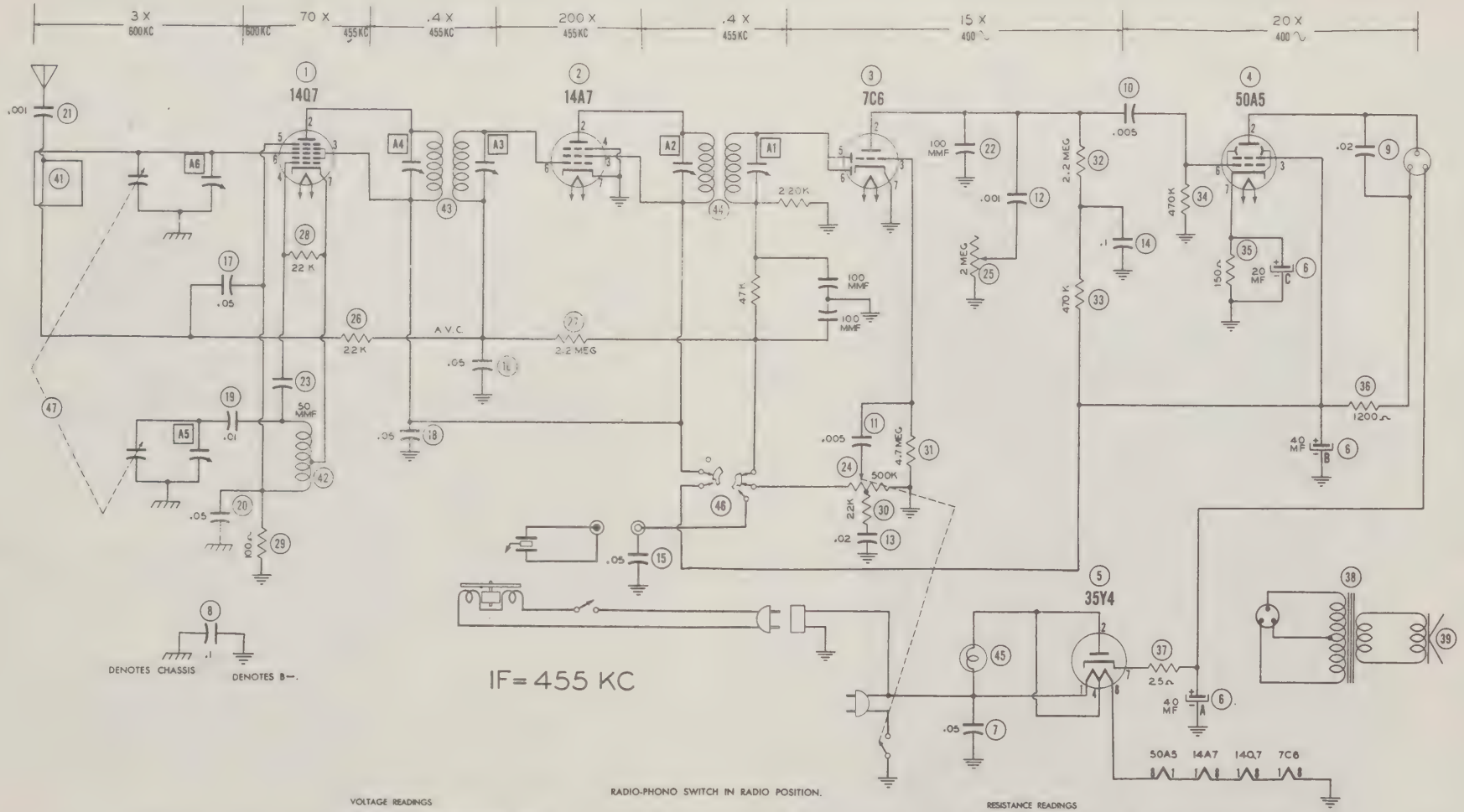
SILVERTONE MODEL 8090
SILVERTONE MODEL 8090



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	20VAC	80VDC	80VDC	-6.5VDC§	1VDC	-.2VDC	1VDC	6.7VAC
2	14A7	33VAC	80VDC	80VDC	0V.	0V.	-.2VDC	0V.	80VAC
3	7C6	6.7VAC	30VDC	-.2VDC	0V.	-.2VDC	-.2VDC	0V.	0V.
4	50A5	33VAC	100VDC	80VDC	65VDC	0V.	0V.	5.8VDC	82VAC
5	35Y4	117VAC	108VAC	0V.	108VAC	0V.	0V.	115VDC	82VAC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	20Ω	60KΩ	60KΩ	22KΩ	100Ω	2.5 Meg.	100Ω	7Ω
2	14A7	34Ω	60KΩ	60KΩ	0Ω	0Ω	2.5 Meg.	0Ω	20Ω
3	7C6	7Ω	2.9 Meg.	4.7 Meg.	0Ω	.160KΩ	160KΩ	0Ω	0Ω
4	50A5	34Ω	60KΩ	60KΩ	800KΩ	180KΩ	470KΩ	150Ω	85Ω
5	35Y4	113Ω	110Ω	INF.	110Ω	0Ω	INF.	60KΩ	85Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4819-20

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

SILVERTONE MODEL 8130

SILVERTONE MODEL 8130

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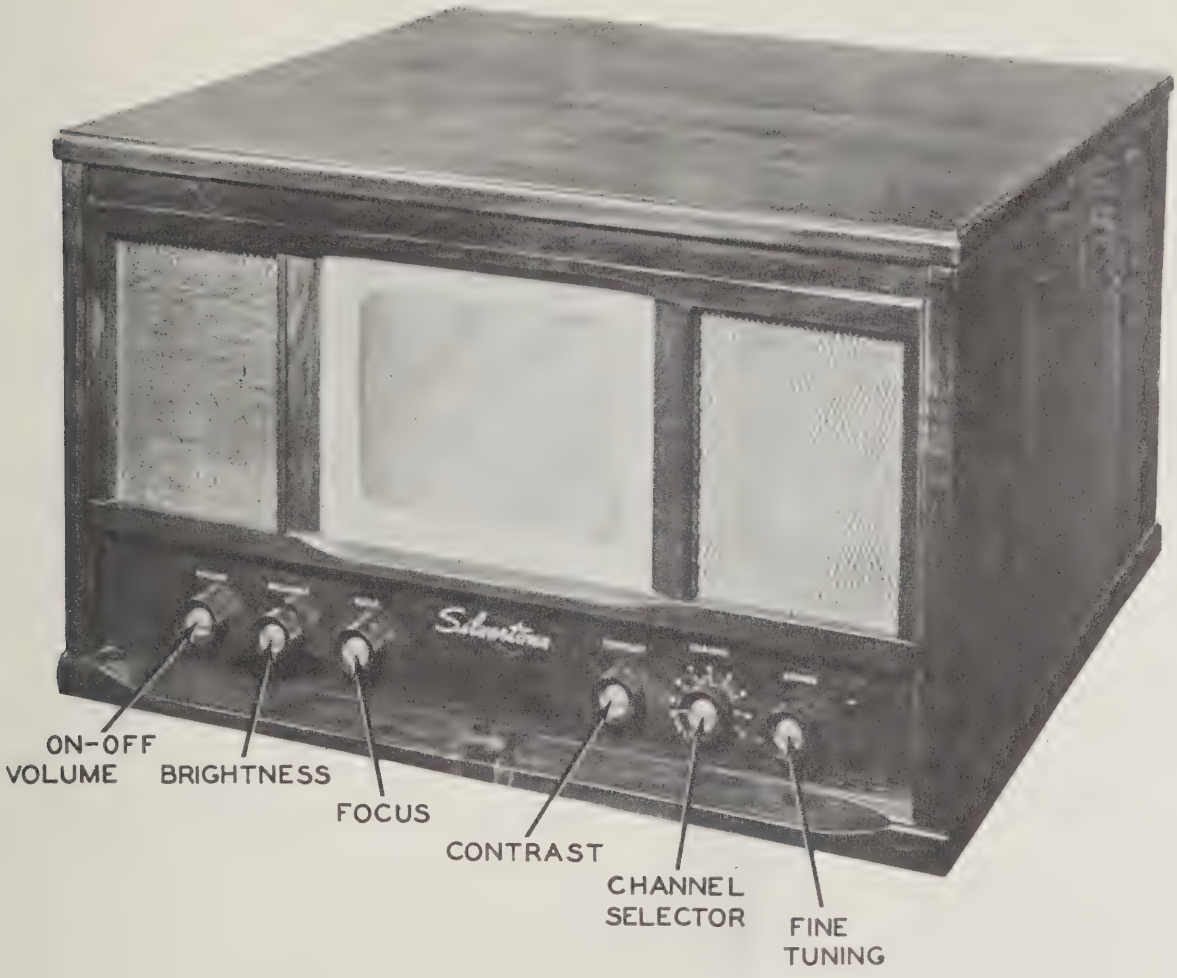
Date 11/48—No. 4819-21 Set No. 49—Folder No. 21

PHOTOFACT* Folder

*TRADE MARK

SILVERTONE MODEL 8130 TELEVISION RECEIVER



SILVERTONE MODEL 8130
TELEVISION RECEIVER

TRADE NAME	Silvertone, Model 8130
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Twenty-Five
POWER SUPPLY	105-125V AC RATING 1.39 Amps. @ 117V AC
TUNING RANGE	Channels 1 through 13

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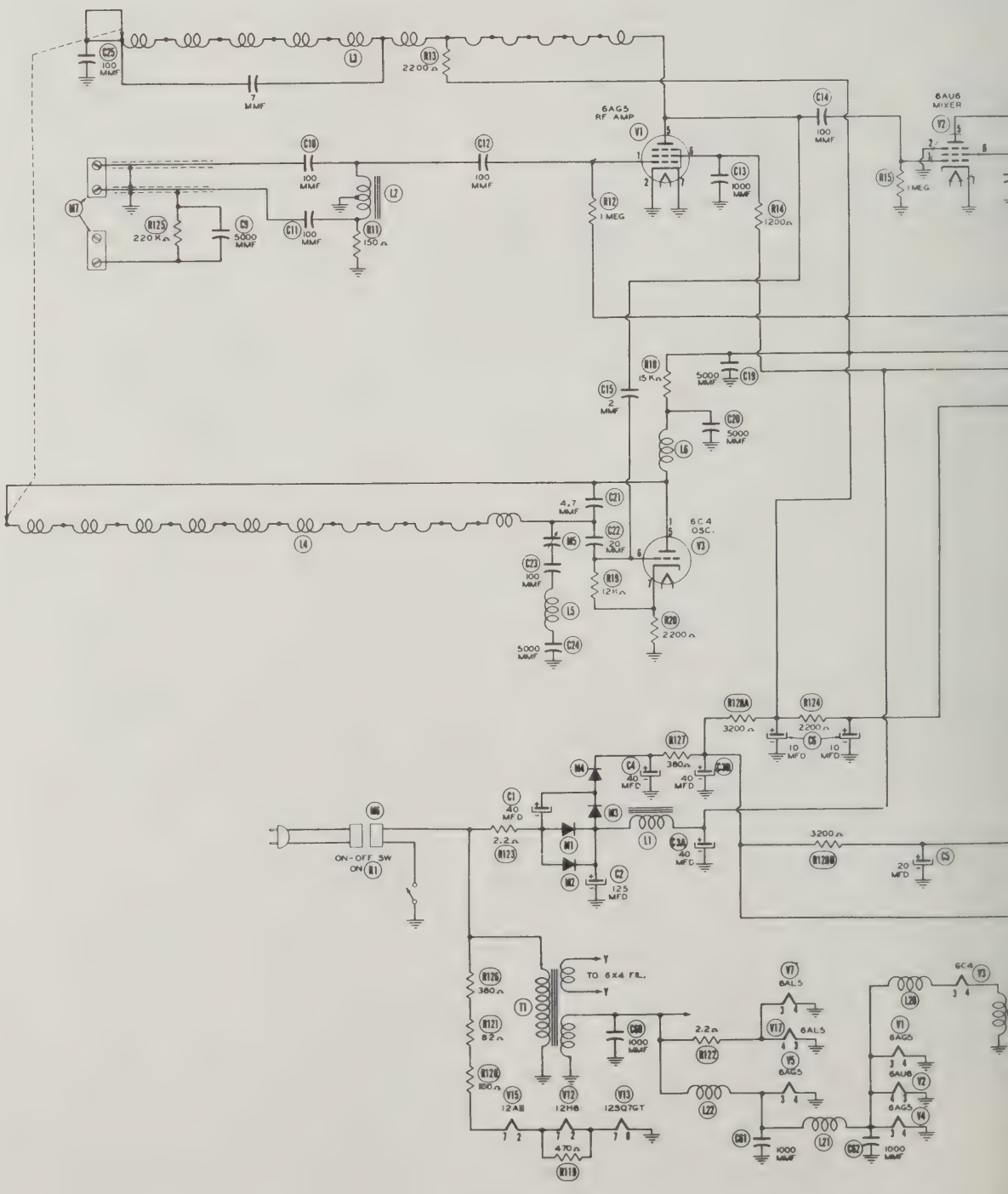
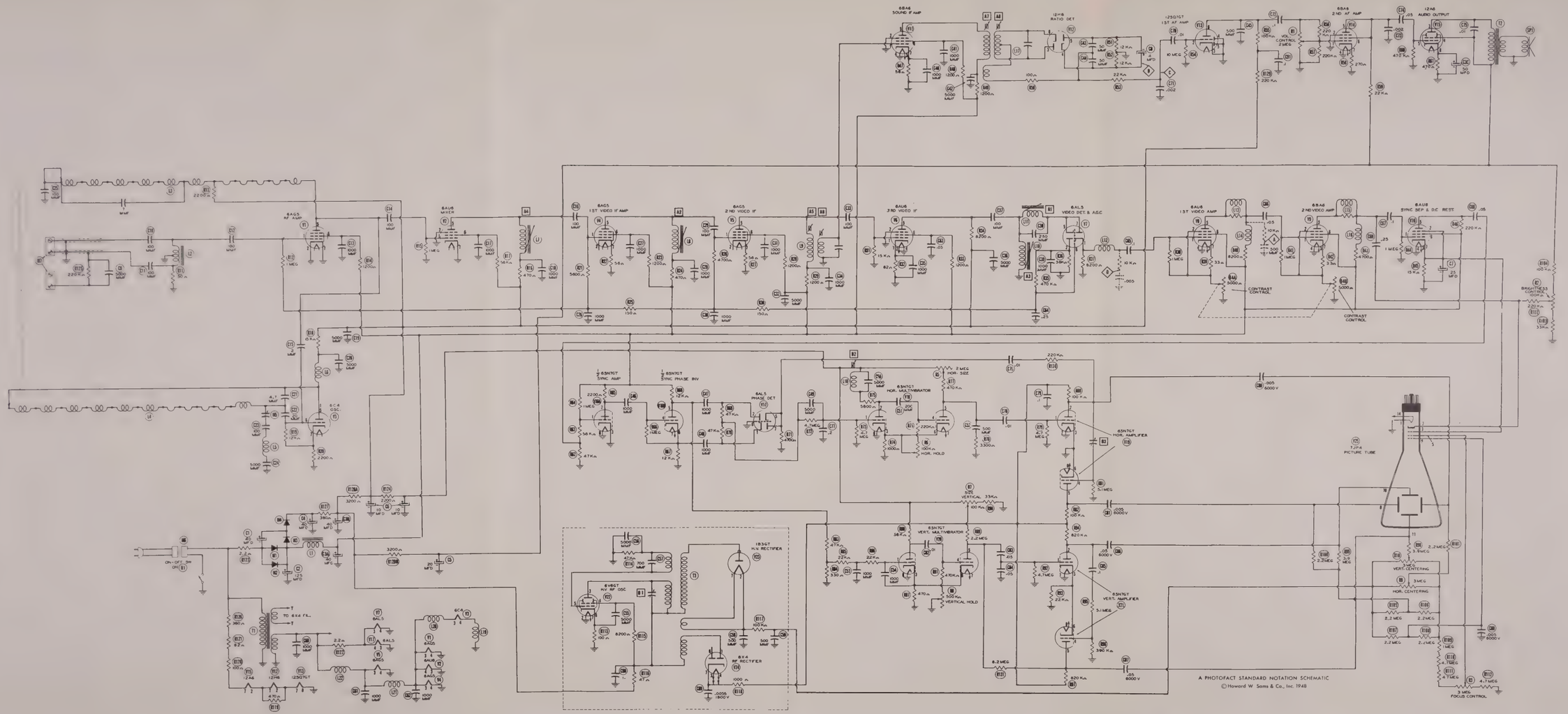
DATE 11/48-#4819-21 SET #49-FOLDER #21


C25 100 MMF
L3
7 MMF
R13 2200Ω
6AG5 RF AMP
V1
C14 100 MMF
6AU6 MIXER
V2
C10 100 MMF
C12 100 MMF
L2
M7
R125 220KΩ
C9 5000 MMF
C11 100 MMF
R11 150Ω
R12 1 MEG
C13 1000 MMF
R14 1200Ω
R15 1 MEG
C15 2 MMF
R18 15KΩ
C19 5000 MMF
C20 5000 MMF
L6
C21 4.7 MMF
C22 20 MMF
M5
C23 100 MMF
R19 12KΩ
L5
C24 5000 MMF
R20 2200Ω
6C4 OSC. V3
L4
R128A 3200Ω
R124 2200Ω
C6 10 MFD
10 MFD
R127 380Ω
M4
C4 40 MFD
C3B 40 MFD
M6
C1 40 MFD
M3
2.2Ω R123
M1
M2
C2 125 MFD
L1
C3A 40 MFD
3200Ω R128B
C5 20 MFD
ON-OFF SW
ON R1
R126 360Ω
T1
TO 6X4 FIL.
R121 82Ω
R120 100Ω
C8B 1000 MMF
V15 12A8
V12 12H6
V13 12SQ7GT
470Ω R118
2.2Ω R122
V7 6AL5
V17 6AL5
V5 6AG5
L22
C8A 1000 MMF
L21
C8C 1000 MMF
6C4 V3
L28
V1 6AG5
V2 6AU6
6AG5 V4


SILVERTONE MODEL 8130
TELEVISION RECEIVER
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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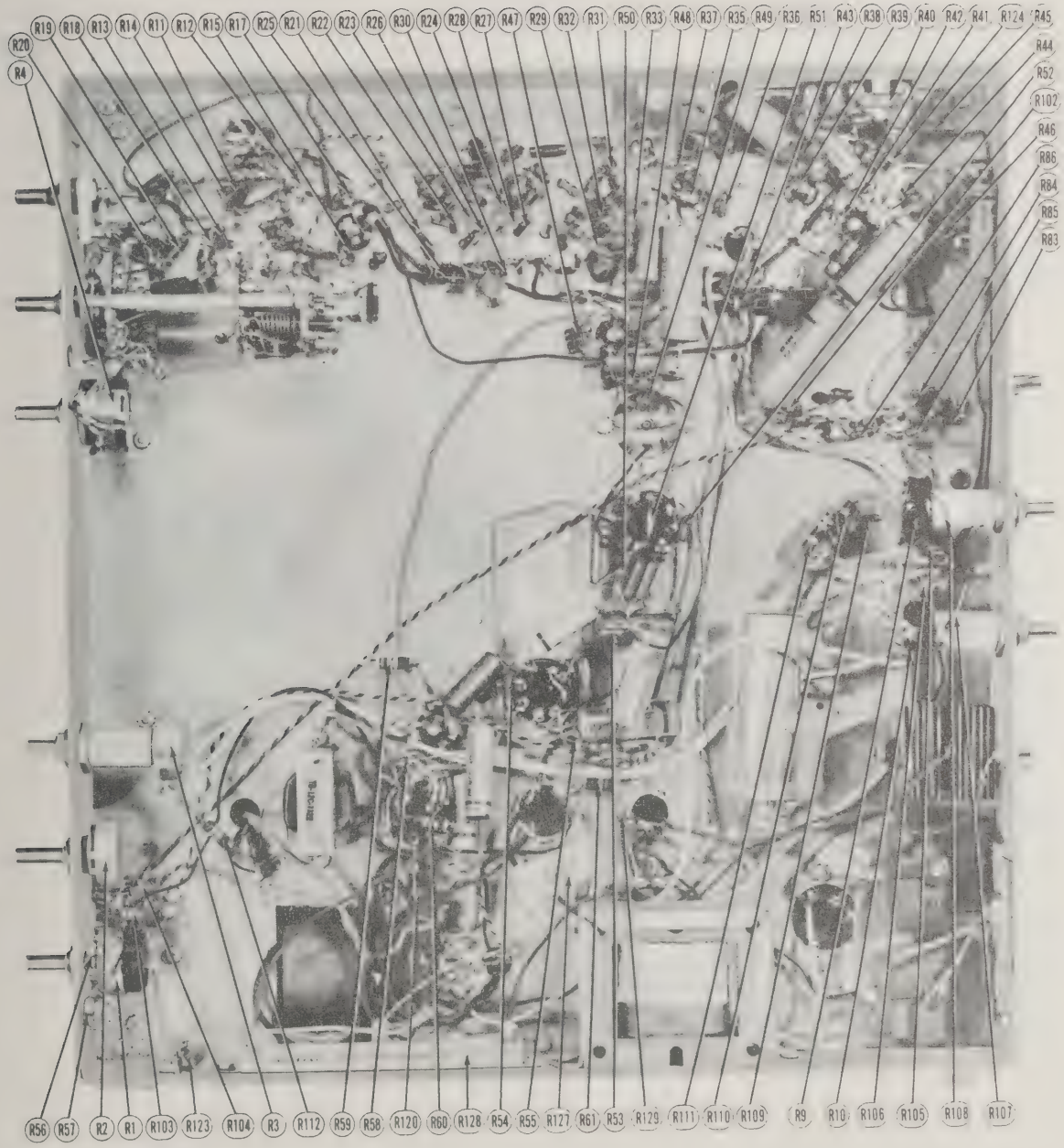
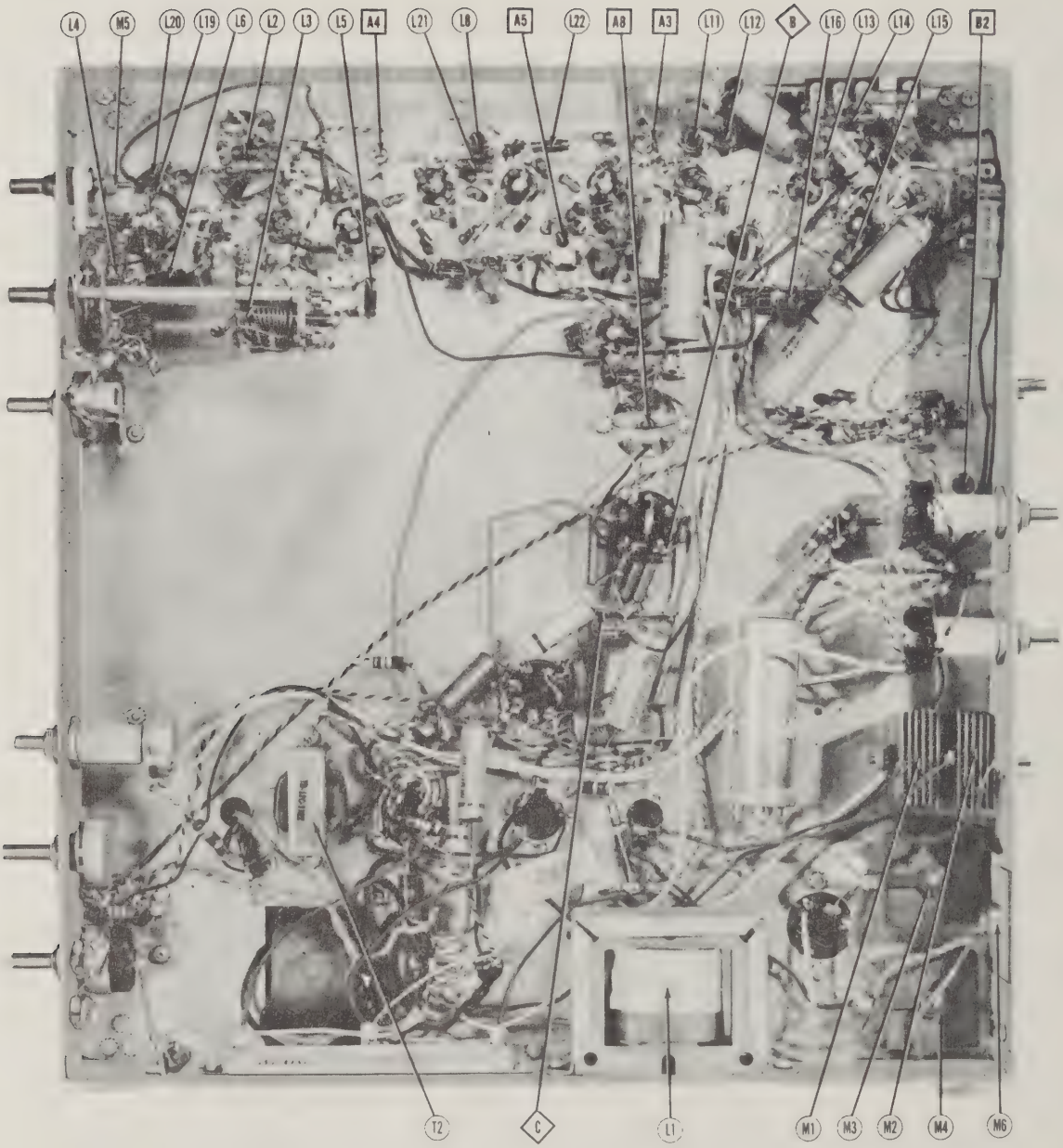


SILVERTONE MODEL 8130
TELEVISION RECEIVER

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS BOTTOM VIEW—TRANSFORMER, INDUCTOR AND ALIGNMENT IDENTIFICATION.

ALIGNMENT INSTRUCTIONS

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Waveform shown may be inverted depending on the number of amplifying stages in the vertical amplifier of the particular scope being used.

The marker signal must be attenuated so that only a small "pip" is visible. A strong signal will cause undesirable AGC action and will distort or swamp the pattern.

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the scope for the horizontal deflection.

Disconnect C14 from Pin 5 of the RF Amplifier, V1. Solder a carbon resistor of a value that matches the output impedance of the signal generator (usually about 50Ω) between pin #1 and the center terminal (ground) of V2. The signal is coupled to Pin 1 through C14.

Connect a series network composed of a 10KΩ carbon resistor and a 500 MMF. capacitor from the junction of L13 and L14 and ground as shown on schematic. The scope is connected across the 500 MMF. capacitor.

Use an isolation transformer to prevent possible damage to the receiver or test equipment.

VIDEO IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1	100MMF. (C14)	High side to Pin #1 of the mixer (V2) through C14. Low side to center terminal of V2 socket		21.6MC (Modulated)	Any Channel	Vertical input to Point Ⓐ. Low side to chassis.	A1	Adjust for minimum deflection.
2	100MMF. (C14)	"	24MC (10MC sweep)	23MC	"	"	A2,A3	Adjust for placement of marker pip as shown in Fig. 1.
3	100MMF. (C14)	"	"	26.1MC	"	"	A4,A5	Adjust so marker pip sets approximately half way up the slope as shown in Fig. 1.
4	100MMF. (C14)	"	"	25.5MC	"	"		Check position of marker as shown in Fig. 1. Maximum dip in center should not exceed 20%.

CARE SHOULD BE TAKEN THAT ADJACENT COILS ARE NOT ADJUSTED TOO NEAR THE SAME FREQUENCY.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5	100 MMF. (C14)	High side to Pin #1 of the mixer (V2) thru C14. Low side to center terminal of V2 socket.	21.6MC (600KC sweep)	21.6MC	Any Channel	Vertical input to Point Ⓑ. Low side to chassis.	A6,A7	Temporarily disconnect one end of stabilizer capacitor C8. Adjust for maximum amplitude with marker at peak of curve. See Fig. 2.
6	100 MMF. (C14)	"	"	"		Vertical input to Point Ⓒ. Low side to chassis.	A8	Reconnect C8. Adjust for symmetrical pattern with marker at center of straight portion. See Fig. 3.

ALTERNATE IF ALIGNMENT USING VTVM

Disconnect C14 from Pin 5 of the RF Amplifier, V1. Solder a carbon resistor of a value that matches the output impedance of the signal generator (usually about 50Ω) between Pin #1 and the center terminal (ground) of V2. The signal is coupled to Pin 1 through C14.

Connect a series network composed of a 10KΩ carbon resistor and a .005 MFD. capacitor from the junction of L12 and C65 to ground. The VTVM is connected across the .005 MFD. capacitor.

Use an isolation transformer to prevent possible damage to the receiver or test equipment.

VIDEO IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	100 MMF. (C14)	High side to Pin #1 of the mixer (V2) through C14. Low side to center terminal of V2 socket.	21.6MC	Any Channel	DC probe to Point Ⓐ. Common to chassis.	A1	Adjust for minimum deflection.
2	100 MMF. (C14)	"	22.8MC	"	"	A2,A3	Adjust for maximum deflection. Adjust RF input to maintain VTVM reading at approximately one volt.
3	100 MMF. (C14)	"	25.8MC	"	"	A4,A5	Adjust for maximum output.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4	100 MMF. (C14)	High side to Pin #1 of the mixer (V2) through C14. Low side to center terminal of V2 socket.	21.6MC	Any Channel	DC probe to Point Ⓑ. Common to chassis.	A6,A7	Adjust for maximum deflection. Use one millivolt input.
5	100 MMF. (C14)	"	"	"	DC probe to Point Ⓒ. Common to chassis.	A8	Adjust for zero voltage. Tuning the signal generator on either side of 21.6 MC should cause a sharp increase in voltage of opposite polarity.

THE RF ADJUSTMENTS ARE PRE-SET AT THE FACTORY. DO NOT READJUST.

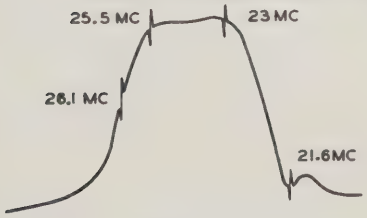


FIG. 1

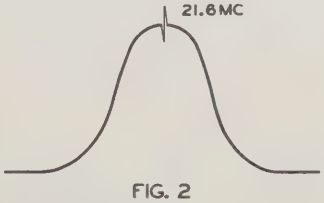


FIG. 2

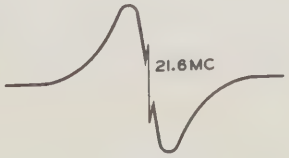
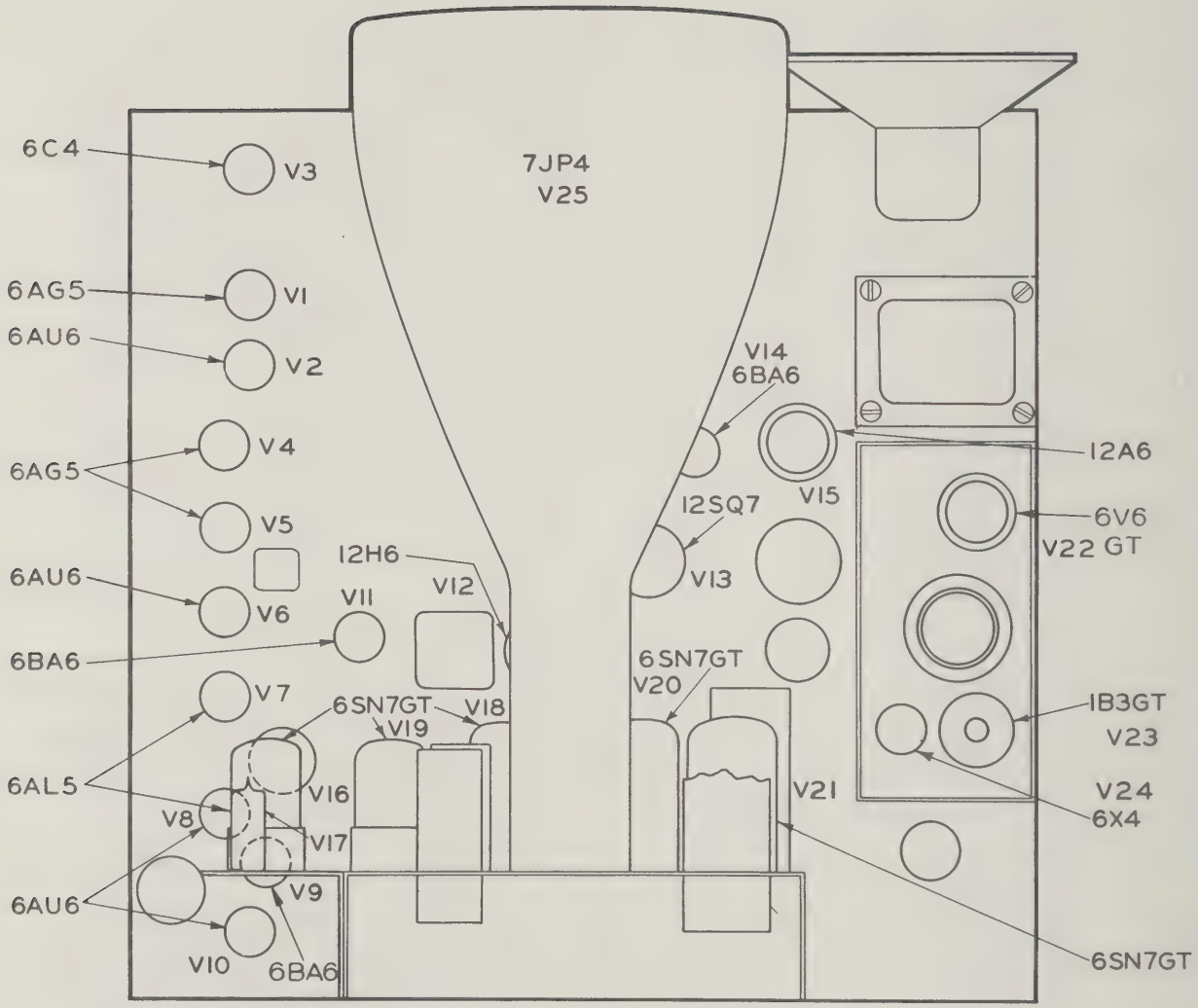


FIG. 3



TUBE PLACEMENT CHART

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6AG5	6AG5	7BD	
V2	Mixer	6AU6	6AU6	7BK	
V3	Oscillator	6C4	6C4	6BG	
V4	1st Video IF Amp.	6AG5	6AG5	7BD	
V5	2nd " " "	6AG5	6AG5	7BD	
V6	3rd " " "	6AU6	6AU6	7BK	
V7	Video Det. & AGC	6AL5	6AL5	6BT	
V8	1st Video Amp.	6AU6	6AU6	7BK	
V9	2nd " "	6BA6	6BA6	7BK	
V10	Sync. Sep. & DC Restorer	6AU6	6AU6	7BK	
V11	Sound IF Amp.	6BA6	6BA6	7BK	
V12	Ratio Detector	12H6	12H6	7Q	
V13	1st AF Amp.	12SQ7GT	12SQ7GT	8Q	
V14	2nd AF Amp.	6BA6	6BA6	7BK	
V15	Audio Output	12A6	12A6	7AC	
V16	Sync. Amp. & Phase Inv.	6SN7GT	6SN7GT	8BD	
V17	Phase Det.	6AL5	6AL5	6BT	
V18	Hor. Multivibrator	6SN7GT	6SN7GT	8BD	
V19	Hor. Amplifier	6SN7GT	6SN7GT	8BD	
V20	Vert. Multivibrator	6SN7GT	6SN7GT	8BD	
V21	Vert. Amplifier	6SN7GT	6SN7GT	8BD	
V22	H.V. RF Osc.	6V6GT	6V6GT	7AC	
V23	H.V. Rectifier	1B3GT	1B3GT	3C	
V24	RF Rectifier	6X4	6X4	5BS	
V25	Picture Tube	7JP4	7JP4	14G	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	40	450	A-8C-1458		UP6A-292	DY-TV-40-450		Doubler Cap.
C2	125	150	A-8C-1437		UP6A-333	DY-TV-125-150		Filter
C3A	40	350	A-8C-1436	AF88J4A	UP4445C	DY-TV-318		◓ "
B	40	350		PRS25-25				■ "
C	50	25						▲ D.C. Res. Cath.
C4	40	450	A-8C-1458		UP4045	DY-TV-40-450		Filter
C5	20	350	A-8C-1438	AF22J	UP1145			"
C6A	10	350	A-8C-1438		UP1145	DY-TV-2X10-350		■ "
B	10	350						▲ "
C7	25	25		PRS25-25	BR252A	M-25-25	TA-25	Cathode Bypass
C8	4	25	A-8C-1082	PRS150-4	BR415		TA-5	Stabilizing Cap.
C9	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	RF Bypass ,-Cer
C10	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	Ant. Coupling "
C11	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
C12	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	RF Coupling "
C13	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	RF Screen Bypass "
C14	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	RF Coupling "
C15	1.5		A-8G-1081					Osc. Coupling "
C16	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	IF Coupling "
C17	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	Mixer Screen Bypass "
C18	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	Mixer Plate Decoup. "
C19	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	RF Bypass "
C20	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	Osc. Plate Decoup. "
C21	4.7		A-8G-1079					Osc. Feedback "
C22	20		A-8G-469					Osc. Grid Cap. "
C23	100		A-8G-1076	1468-0001	5W5T5	MO.5-31	1FM-31	Fixed Padder "
C24	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	" " "
C25	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	Fixed Trimmer "
C26	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	AGC Filter "
C27	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	1st V. IF Screen Byp. "
C28	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	1st V. IF Plate Decoup. "
C29	100		A-8G-1076	1468-001	5W5T1	MO.5-31	1FM-31	Video IF Coupling "
C30	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	AGC Filter "
C31	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	2nd V. IF Screen Byp. "
C32	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	RF Bypass "
C33	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	Video IF Coupling "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES		
R11	150Ω	½	C-9B-315-52		Br.-Grn.-Br.	Antenna Transformer Shunt	±10%
R12	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	RF Grid	
R13	2200Ω	½	C-9B-315-66	BTS-2200	Red-Red-Red	RF Plate Load	±10%
R14	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	RF Screen	±10%
R15	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	Mixer Grid	
R16	470Ω	½	C-9B-315-11	BTS-470	Yl.-Vi.-Br.	Mixer Plate Decoupling	
R17	56KΩ	½	C-9B-315-83	BTS-56K	Grn.-Blue-Or.	Mixer Screen	±10%
R18	15KΩ	1	C-9B-316-76	BTA-15K	Br.-Grn.-Or.	Osc. Decoupling	±10%
R19	12KΩ	½	C-9B-315-75	BTS-12K	Br.-Red-Or.	Osc. Grid	±10%
R20	2200Ω	½	C-9B-315-66	BTS-2200	Red-Red-Red	Osc. Cathode	±10%
R21	5600Ω	½	C-9B-315-71	BTS-5600	Grn.-Blue-Red	1st Video IF Grid	±10%
R22	56Ω	½	C-9B-315-47		Grn.-Blue-Blk.	1st Video IF Cathode	±10%
R23	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	1st Video IF Screen	±10%
R24	470Ω	½	C-9B-315-11	BTS-470	Yl.-Vi.-Br.	1st Video IF Plate Decoupling	
R25	150Ω	½	C-9B-315-52		Br.-Grn.-Br.	AGC Network	±10%
R26	4700Ω	½	C-9B-315-10	BTS-4700	Yl.-Vi.-Red	2nd Video IF Grid	±10%
R27	56Ω	½	C-9B-315-47		Grn.-Blue-Blk.	2nd Video IF Cathode	±10%
R28	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	2nd Video IF Screen	±10%
R29	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	2nd Video IF Plate Decoupling	±10%
R30	150Ω	½	C-9B-315-52		Br.-Grn.-Br.	AGC Network	±10%
R31	15KΩ	½	C-9B-315-76	BTS-15K	Br.-Grn.-Or.	3rd IF Grid	±10%
R32	82Ω	½	C-9B-315-49		Gray-Red-Blk.	3rd Video IF Cathode	±10%
R33	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	3rd Video IF Screen	±10%
R34	8200Ω	½	C-9B-315-73	BTS-8200	Gray-Red-Red	3rd Video IF Plate	±10%
R35	470KΩ	½	C-9B-315-29	BTS-470K	Yl.-Vi.-Yl.	AGC Network	
R36	56KΩ	½	C-9B-315-83	BTS-56K	Grn.-Blue-Or.	AGC Diode Load	±10%
R37	8200Ω	½	C-9B-315-73	BTS-8200	Gray-Red-Red	Video Det. Load	±10%
R38	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	1st Video Amp. Grid	
R39	33Ω	½	C-9B-315-44		Or.-Or.-Blk.	1st Video Amp. Cathode	±10%
R40	8200Ω	1	C-9B-316-73	BTA-8200	Gray-Red-Red	1st Video Amp. Plate	±10%
R41	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	2nd Video Amp. Grid	
R42	33Ω	½	C-9B-315-44		Or.-Or.-Blk.	2nd Video Amp. Cathode	±10%
R43	4700Ω	1	C-9B-316-70	BTA-4700	Yl.-Vi.-Red	2nd Video Amp. Plate	±10%
R44	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	Sync. Separator Grid	
R45	15KΩ	½	C-9B-315-76	BTS-15K	Br.-Grn.-Or.	Sync. Separator Cathode	±10%
R46	220KΩ	½	C-9B-315-27	BTS-220K	Red-Red-Yl.	Sync. Separator Plate	
R47	56Ω	½	C-9B-315-47		Grn.-Blue-Blk.	1st Sound IF Cathode	±10%
R48	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	1st Sound IF Screen	±10%
R49	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	1st Sound IF Decoup.	±10%
R50	100Ω	½	C-9B-315-50		Br.-Blk.-Br.	Balancing Resistor	±10%
R51	12KΩ	½	C-9B-315-75	BTS-10K	Br.-Blk.-Or.	Diode Load	±10%
R52	12KΩ	½	C-9B-315-75	BTS-10K	Br.-Blk.-Or.	" "	±10%
R53	22KΩ	½	C-9B-315-21	BTS-22K	Red-Red-Or.	De-emphasis	±10%
R54	10 Meg.	½	C-9B-315-37	BTS-10 Meg.	Br.-Blk.-Blue	1st AF Grid	
R55	100KΩ	½	C-9B-315-25	BTS-100K	Br.-Blk.-Yl.	1st AF Plate	
R56	220KΩ	½	C-9B-315-90	BTS-220K	Red-Red-Yl.	Vol. Control Shunt	±10%
R57	220KΩ	½	C-9B-315-90	BTS-220K	Red-Red-Yl.	" " "	±10%
R58	270Ω	½	C-9B-315-55	BW-½-270	Red-Vi.-Br.	2nd AF Cathode	±10%
R59	22KΩ	2	C-9B-317-21	BT-2-22K	Red-Red-Or.	2nd AF Plate-See Note 1	±10%
R60	470KΩ	½	C-9B-315-29	BTS-470K	Yl.-Vi.-Yl.	Output Grid	
R61	470Ω	1	C-9B-316-58	BTA-470	Yl.-Vi.-Br.	Output Cathode	±10%
R62	47KΩ	½	C-9B-315-23	BTS-47K	Yl.-Vi.-Or.	Sync. Amp. Grid	
R63	56KΩ	½	C-9B-315-83	BTS-56K	Grn.-Blue-Or.	Sync. Amp. Grid	±10%
R64	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	Bleeder	
R65	2200Ω	1	C-9B-316-66	BTA-2200	Red-Red-Red	Sync. Amp. Plate	±10%
R66	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	Sync. Phase Inv. Grid	
R67	12KΩ	½	C-9B-315-75	BTS-12K	Br.-Red-Or.	Sync. Phase Inv. Cathode	±10%
R68	12KΩ	½	C-9B-315-75	BTS-12K	Br.-Red-Or.	Sync. Phase Inv. Plate	±10%
R69	47KΩ	½	C-9B-315-23	BTS-47K	Yl.-Vi.-Or.	Phase Det. Diode Load	
R70	47KΩ	½	C-9B-315-23	BTS-47K	Yl.-Vi.-Or.	" " " "	
R71	4.7KΩ	½	C-9B-315-10	BTS-4700	Yl.-Vi.-Red	Phase Det. Input	
R72	4.7 Meg.	½	C-9B-315-35	BTS-4.7 Meg.	Yl.-Vi.-Grn.	AFC Coupling	
R73	4.7 Meg.	½	C-9B-315-35	BTS-4.7 Meg.	Yl.-Vi.-Grn.	Horizontal M.V. Grid	
R74	1000Ω	½	C-9B-315-62	BTS-1000	Br.-Blk.-Red	Horizontal M.V. Cathode	±10%
R75	5600Ω	½	C-9B-315-71	BTS-5600	Grn.-Blue-Red	Horizontal M.V. Plate	±10%
R76	220KΩ	½	C-9B-315-27	BTS-220K	Red-Red-Yl.	Horizontal M.V. Grid	
R77	470KΩ	½	C-9B-315-29	BTS-470K	Yl.-Vi.-Yl.	Horizontal M.V. Plate	
R78	3300Ω	½	C-9B-315-68	BTS-3300	Or.-Or.-Red	Peaking Resistor	±10%
R79	4.7 Meg.	½	C-9B-315-35	BTS-4.7 Meg.	Yl.-Vi.-Grn.	Horizontal Output Grid	
R80	100KΩ	1	C-9B-316-86	BTA-100K	Br.-Blk.-Yl.	Horizontal Output Plate	±10%
R81	5.1 Meg.	½		BTS-5.1 Meg.	Grn.-Br.-Grn.	Horizontal Output Grid	± 0%
R82	100KΩ	1	C-9B-316-86	BTA-100K	Br.-Blk.-Yl.	Horizontal Output Plate	±10%
R83	47KΩ	½	C-9B-315-23	BTS-47K	Yl.-Vi.-Or.	Voltage Divider	
R84	330Ω	½		BW-½-330	Or.-Or.-Br.	" "	
R85	22KΩ	½	C-9B-315-21	BTS-22K	Red-Red-Or.	Integrator Network	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L2	Ant. Trans.		0Ω	A-13E-1062		
L3	RF Coil		0Ω	C-13C-1175		11 Inductors-Part of Channel Switch
L4	Osc. Coil		0Ω	C-13C-1175		" " " " " "
L5	RF Choke		0Ω	A-16A-1053		
L6	" "		0Ω	A-16A-1173		Osc. Plate
L7	1st Video IF		0Ω	A-13A-1139-1		
L8	2nd " "		0Ω	A-13A-1139-1		
L9	3rd Video IF & Sound Take-Off	0Ω	0Ω	B-13H-1369		
L10	4th Video IF		0Ω	A-13A-1139-1		
L11	Sound Trap		0Ω			
L12	Shunt Peaking		10Ω	A-13G-1143		
L13	Series Peaking					Wound on 18KΩ 1 Watt resistor
L14	"		12Ω	A-13F-1142		
			10Ω	A-13G-1143		
L15	Series Peaking		12Ω	A-13F-1142		" " " " " "
L16	Shunt Peaking		10Ω	A-13G-1143		
L17	Ratio Det.	1.5Ω	0Ω	B-13K-1047		Tertiary approx. 1/2 Ω
L18	Horizontal Lock		125Ω	A-13D-1456		26 Millihenry
L19	Fil. Choke		0Ω	A-16A-1053		
L20	" "		0Ω	A-16A-1053		
L21	" "		0Ω	A-16A-1053		
L22	" "		0Ω	A-16A-1053		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.				
SP1	PM	3.4Ω	B-208-227	ST-105	5A15	
	CONE DIA.	VC DIA.				
SP2	4-3/4"	9/16"				

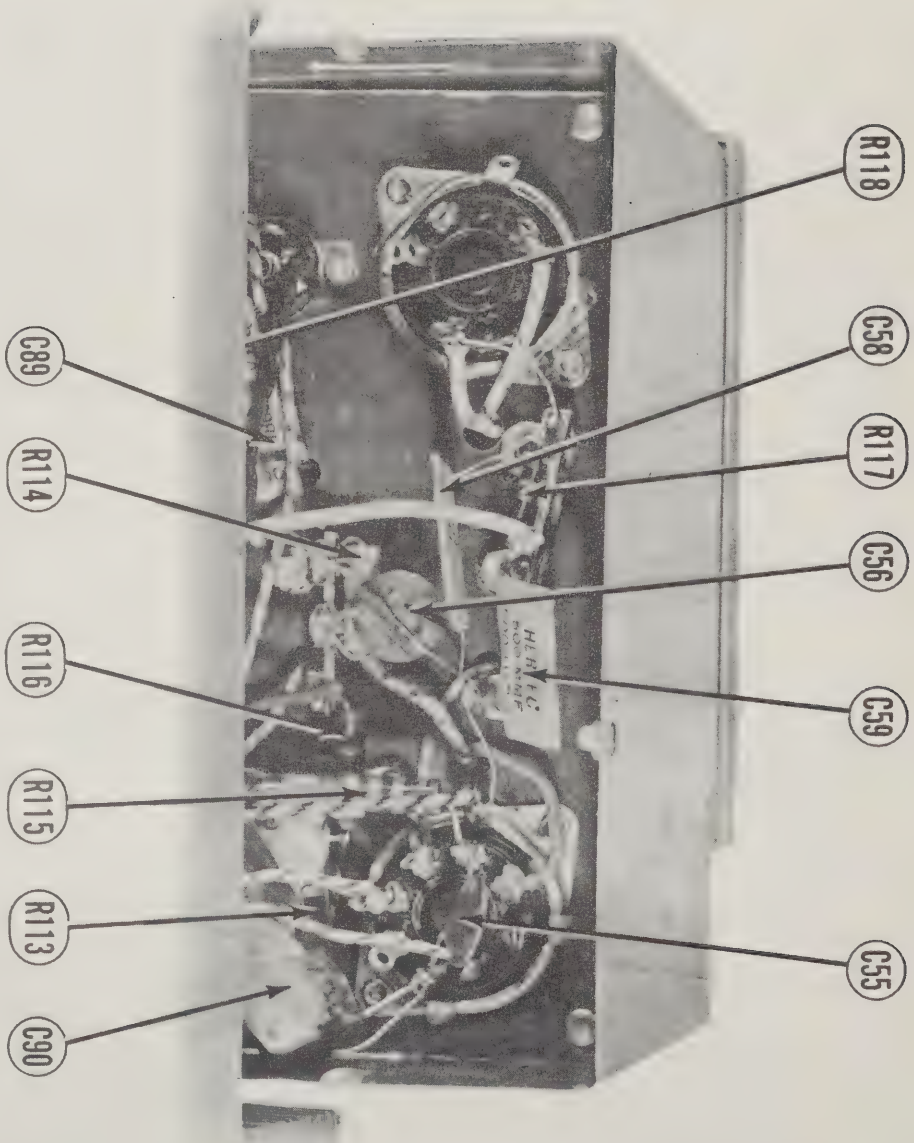
SELENIUM RECTIFIER

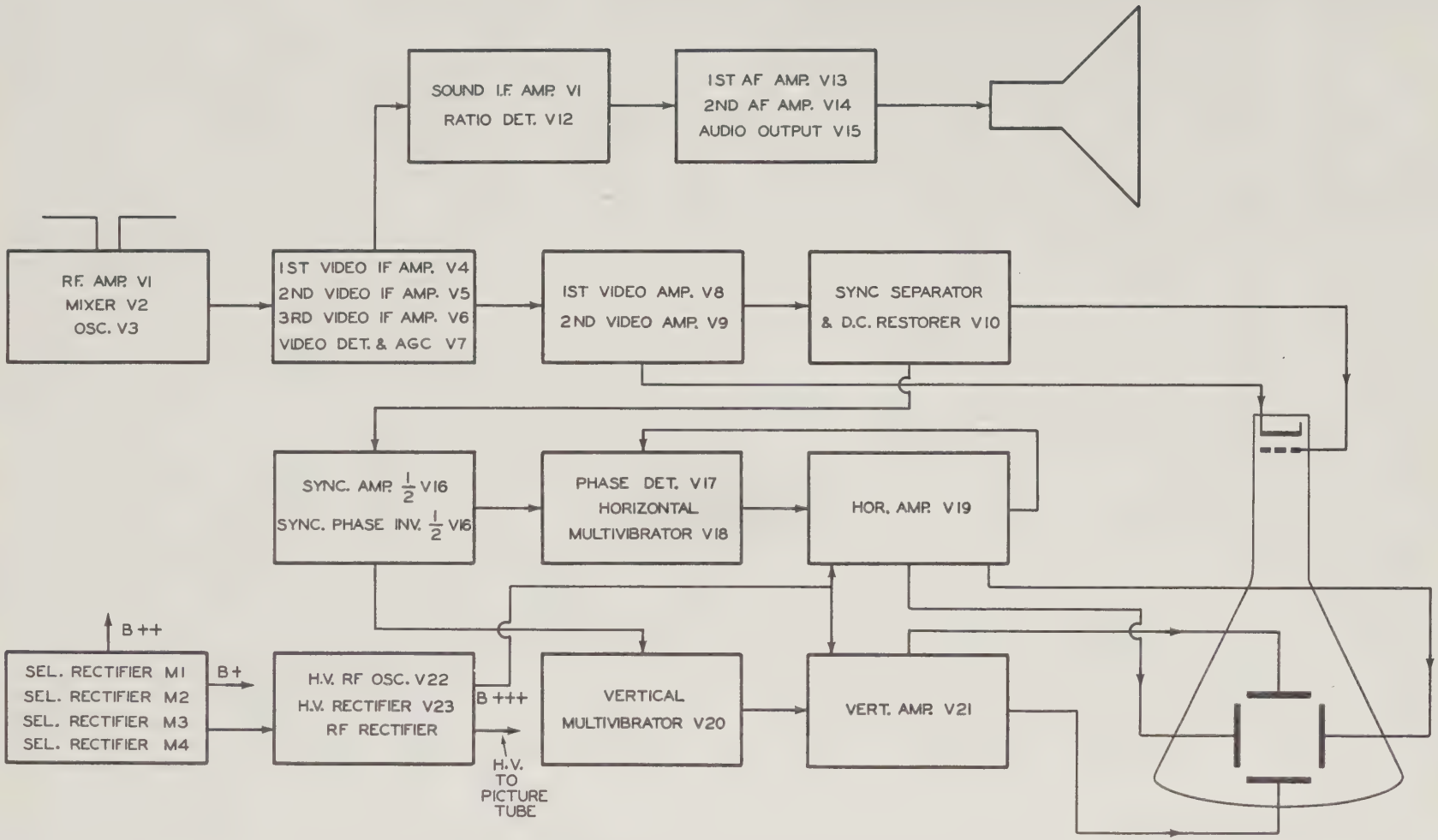
ITEM No.	RATING CURRENT	REPLACEMENT DATA SILVERTONE PART No.			NOTES
M1	200 MA.	A-8N-1154			
M2		A-8N-1457			
M3	112 MA.	A-8N-1154			
M4	115 MA.	A-8N-1457			

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M5	Fine Tuning Capacitor	A-8H-1073	
M6	AC Receptacle	A-19A-1418	
M7	Antenna Terminal	A-7B-720	2 Used
B1	Trimmer 1000MMF	A-8F-1416	High Voltage Adjustment
B3	Cer. Trimmer 5-20MMF.	A-8F-1454	Hor. Linearity Adjustment
	Stand-Off Insulator	A-5F-1434	Used On Focus, Hor. & Vert. Centering Controls
	Line Cord	A-14A-963	
	Cabinet	D-212-205	
	Knobs	A-5B-1452	
	Back Cover	C-8C-1423	
	Safety Glass	B-65A-1099	

RF OSC POWER SUPPLY BOTTOM VIEW





BLOCK DIAGRAM

C34	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	2nd V. IF Plate Decoup.	"
C35	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	3rd V. IF Cath. Byp.	"
C36	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	3rd V. IF Plate Decoup.	"
C37	100		A-8G-1076	1468-0001	5W5T1	MO.5-31	1FM-31	Video Coupling	"
C38	250	500	A-8F-506	1468-00025	5W5T25	MO.5-325	1FM-325	Fixed Trimmer	
C39	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	RF Filter	"
C40	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	IF Cath. Bypass	"
C41	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	IF Screen Bypass	"
C42	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	IF Plate Decoup.	"
C43	50	500	A-8F-456	1468-00005	5W5Q5	MO.5-45	1FM-45	Diode Load Cap.	
C44	50	500	A-8F-456	1468-00005	5W5Q5	MO.5-45	1FM-55	" " "	
C45	500	500	A-8F-629	1468-0005	5W5T5	MO.5-35	1FM-35	AF Plate Bypass	
C46	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	Sync. Coupling	"
C47	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	Hor. Sync. Coup.	"
C48	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	" " "	"
C49	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	AFC Coupling	
C50	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	Fixed Trimmer	
C51	200	500	A-8F-1431	1468-0002	5W5T2	MO.5-32	1FM-32	Hor. MV Feedback	
C52	500	500	A-8F-629	1468-0005	5W5T5	MO.5-35	1FM-35	Hor. Discharge	
C53	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	Integrator Network	"
C54	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	" "	"
C55	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	RF Osc. Screen Byp.	"
C56	5000		A-8G-1078	1467-005	1D5D5	MW.5-25	1FM-25	RF Osc. Grid	
C57	700	500	A-8F-1213-25				1FM-37	Fixed Trimmer	
C58	500	10000	A-8F-629					H.V. Filter	
C59	500	10000	A-8F-629					" "	
C60	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	Fil. Bypass	"
C61	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	" "	"
C62	1000		A-8G-1077	1467-001	1W5D1	MW.5-21	1FM-21	" "	"
C63	.05	400	A-8D-492	484-05	DT4S5	ST-4-05	TM-15	3rd V. IF Screen Byp.	"
C64	.25	400		484-.25	DT4P25	ST-4-25	TC-2	AGC Filter	
C65	.1	400	A-8D-493	484-.1	DT4P1	ST-4-1	TC-1	Video Coupling	
C66	.05	400	A-8D-492	484-05	DT4S5	ST-4-05	TM-15	" "	
C67	.1	400	A-8D-493	484-.1	DT4P1	ST-4-1	TC-1	" "	
C68	.05	400	A-8D-492	484-05	DT4S5	ST-4-05	TC-15	Sync. Coupling	
C69	.25	400		484-.25	DT4P25	ST-4-25	TC-2	Video Coupling	
C70	.01	400	A-8D-639	484-01	DT4S1	ST-4-01	TM-11	Audio Coupling	
C71	.002	400		684-002	DT6D2	ST-6-002	TM-22	De-emphasis	
C72	.1	400	A-8D-493	484-.1	DT4P1	ST-4-1	TC-1	Audio Coupling	
C73	.002	600	A-8D-1157	684-002	DT6D2	ST-6-002	TM-22	2nd AF Plate Bypass	
C74	.05	400	A-8D-492	484-05	DT4S5	ST-4-05	TM-15	Audio Coupling	
C75	.01	400	A-8D-639	484-01	DT4S1	ST-4-01	TM-11	Output Plate Bypass	
C76	.01	600	A-8D-1074	684-01	DT6S1	ST-6-01	TM-11	Hor. AFC Coupling	
C77	.2			484-.2	DT4P2	ST-4-2	TC-2	AFC Filter	
C78	.01	600	A-8D-1074	684-01	DT6S1	ST-6-01	TM-11	Hor. Coupling	
C79	.1	600	A-8D-669	684-.1	DT6P1	ST-6-1	TC-1	RF Bypass	
C80	.005	6000	B-8B-1429					Hor. Coupling	
C81	.005	6000	B-8B-1429					" "	
C82	.01	600	A-8D-1074	684-01	DT6S1	ST-6-01	TM-11	Ver. M.V. Feedback	
C83	.05	400	A-8D-492	484-05	DT4S5	ST-4-05	TM-15	Ver. Coupling	
C84	.05	400	A-8D-492	484-05	DT4S5	ST-4-05	TM-15	Ver. Discharge	
C85	.1	600	A-8D-669	684-.1	DT6P1	ST-6-1	TC-1	Ver. Coupling	
C86	.05	6000	B-8B-1430					" "	
C87	.05	6000	B-8B-1430					" "	
C88	.005	6000	B-8B-1429					ACC. Anode Bypass	
C89	.0055	1800	A-8B-1019					RF Filter	
C90	.1	600	A-8D-669	684-.1	DT6P1	ST-6-1	TC-1	RF Osc. Decoup.	
C91	.1	600	A-8D-669	684-.1	DT6P1	ST-6-1	TC-1	Audio Plate Decoup.	

R86	22KΩ	½	C-9B-315-21	BTS-22K	Red-Red-Or.	"	"	
R87	470Ω	½	C-9B-315-58	BTS-470	Yl.-Vi.-Br.	Vert. M.V. Cathode	±1	%
R88	56KΩ	½	C-9B-315-83	BTS-56K	Grn.-Blue-Or.	Vert. M.V. Plate	±1	%
R89	2.2 Meg.	½	C-9B-315-102	BTS-2.2 Meg.	Red-Red-Grn.	" " "	±10	%
R90	33KΩ	½	C-9B-315-22	BTS-33K	Or.-Or.-Or.	Bleeder		
R91	470KΩ	½	C-9B-315-29	BTS-470K	Yl.-Vi.-Yl.	Vert. M.V. Grid		
R92	4.7 Meg.	½	C-9B-315-35	BTS-4.7 Meg.	Yl.-Vi.-Grn.	Vert. Output Grid		
R93	22KΩ	½	C-9B-315-21	BTS-22K	Red-Red-Or.	Vert. Output Cathode		
R94	820KΩ	½	C-9B-315-97	BTS-820K	Gray-Red-Yl.	Vert. Output Plate	±10	%
R95	5.1 Meg.	½		BTS-5.1 Meg.	Grn.-Br.-Grn.	Voltage Divider	±	%
R96	390KΩ	½	C-9B-315-93	BTS-390K	Or.-Wh.-Yl.	Vertical Output Grid	±10	%
R97	820KΩ	½	C-9B-315-97	BTS-820K	Gray-Red-Yl.	Vertical Output Plate	±10	%
R98	3.9 Meg.	½	C-9B-315-105	BTS-3.9 Meg.	Or.-Wh.-Grn.	Vertical Deflection Load	±1	%
R99	3.9 Meg.	½	C-9B-315-105	BTS-3.9 Meg.	Or.-Wh.-Grn.	" " "	±10	%
R100	2.2 Meg.	½	C-9B-315-102	BTS-2.2 Meg.	Red-Red-Grn.	Horizontal Deflection Load	±10	%
R101	2.2 Meg.	½	C-9B-315-102	BTS-2.2 Meg.	Red-Red-Grn.	" " "	±10	%
R102	220KΩ	½	C-9B-315-90	BTS-220K	Red-Red-Yl.	Picture Tube Cathode	±10	%
R103	33KΩ	½	C-9B-315-80	BTS-33K	Or.-Or.-Or.	Bleeder	±10	%
R104	100KΩ	½	C-9B-315-25	BTS-100K	Br.-Blk.-Yl.	" - See Note 2		
R105	2.2 Meg.	½	C-9B-315-33	BTS-2.2 Meg.	Red-Red-Grn.	"		
R106	2.2 Meg.	½	C-9B-315-33	BTS-2.2 Meg.	Red-Red-Grn.	"		
R107	2.2 Meg.	½	C-9B-315-33	BTS-2.2 Meg.	Red-Red-Grn.	"		
R108	2.2 Meg.	½	C-9B-315-33	BTS-2.2 Meg.	Red-Red-Grn.	"		
R109	1 Meg.	½	C-9B-315-31	BTS-1 Meg.	Br.-Blk.-Grn.	"		
R110	4.7 Meg.	1	C-9B-316-98	BTA-4.7 Meg.	Yl.-Vi.-Grn.	"	±10	%
R111	4.7 Meg.	1	C-9B-316-98	BTA-4.7 Meg.	Yl.-Vi.-Grn.	"	±10	%
R112	4.7 Meg.	1	C-9B-316-98	BTA-4.7 Meg.	Yl.-Vi.-Grn.	"	±10	%
R113	100Ω	2	C-9B-317-50		Br.-Blk.-Br.	RF Oscillator Cathode	±10	%
R114	47KΩ	½	C-9B-315-82	BTS-47KΩ	Yl.-Vi.-Or.	RF Oscillator Grid	±10	%
R115	8200Ω	1	C-9B-316-73	STA-8200	Gray-Red-Red	RF Oscillator Screen	±10	%
R116	47Ω	1	C-9B-316-46	BW-1-47	Yl.-Vi.-Blk.	RF Oscillator Decoupling	±10	%
R117	100KΩ	½	C-9B-315-25	BTS-100K	Br.-Blk.-Yl.	H.V. Filter		
R118	1200Ω	½	C-9B-315-63	BTS-1200	Br.-Red-Red	B+++ Filter	±10	%
R119	470Ω	½	C-9B-315-11	BTS-470	Yl.-Vi.-Br.	Filament Shunt-See Note 3		
R120	100Ω	2	C-9B-317-50	BW-2-100	Br.-Blk.-Br.	Filament Dropping		
R121	82Ω	2		BW-2-82	Gray-Red-Blk.	" "	±10	%
R122	2.2Ω	1	C-9B-316-308	BW-1-2.2	Red-Red-Gold	" "	±10	%
R123	2.2Ω	1	C-9B-316-308	BW-1-2.2	Red-Red-Gold	" "	±10	%
R124	2200Ω	1	C-9B-316-66	BTS-2.2K	Red-Red-Red	Filter	±1	%
R125	220KΩ	½	C-9B-315-90	BTS-220K	Red-Red-Yl.	Ext. Ground Isolation		
R126	380Ω	10	A-9C-1441			Wire Wound Filament Dropping		
R127	380Ω	10	A-9C-1441			Wire Wound Filter		
R128A	3200Ω	16	A-9C-1459	DHA-3500*		" " "		
B	3200Ω	16		DHA-3500*		" " "		
R129	220KΩ	½	C-9B-315-90	BTS-220K	Red-Red-Yl.	1st AF Decoupling		
R130	220KΩ	½	C-9B-315-90	BTS-220K	Red-Red-Yl.	AFC Coupling		
R131	8.2 Meg.	½		BTS-8.2 Meg.	Gray-Red-Grn.	Vertical Feedback		

Note 1-Some models use 2 - 47KΩ 1 Watt resistors in parallel in this application.
Note 2-Some models use 2 - 220KΩ resistors in parallel in this application.
Note 3-Not used on all models. * - Set slider at 3200Ω.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CLAROSTAT PART No.	IRC PART No.		
R1A	2 Meg.	½	B-10A-1040	M-66-Z	D13-139		Volume Control
B	Shaft				A		Attach to R1A per instructions
C	Switch			SW-A	41		" " " "
R2A	100KΩ	½	B-10B-1168-6	M-49-S	D11-128		Brightness Control
B	Shaft				A		Attach to R2A per instructions
R3A	3 Meg.	½	B-10B-1168-2				Focus Control
B	Shaft						
R4A	5000Ω	½	B-10B-1168-5				Contrast Control-Dual
B	5000Ω	½					
C	Shaft						
R5A	2 Meg.	½	A-11B-786	M-83-S			Horizontal Size Control
B	Shaft						
R6A	100KΩ	½	B-10B-1168-6	M-49-S	D11-128		Horizontal Hold Control
B	Shaft				A		Attach to R6A per instructions
R7A	100KΩ	½	B-10B-1168-6	M-49-S	D11-128		Vertical Size Control
B	Shaft				A		Attach to R7A per instructions
R8A	500KΩ	½	B-10B-1168-4	M-58-S	D11-133		Vertical Hold Control
B	Shaft				A		Attach to R8A per instructions
R9A	3 Meg.	½	B-10B-1168-2				Horizontal Centering Control
B	Shaft						
R10A	3 Meg.	½	B-10B-1168-2				Vertical Centering Control
B	Shaft						

TRANSFORMER (FILAMENT)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
T1	.58 Amp. @ 117VAC	.61 Amp. @ 6.2VAC	7.9 Amp. @ 6.1VAC					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	7000Ω	3.4Ω	440Ω	.6Ω	B-12C-1132	A-3817	TZ3547	A-2361	

TRANSFORMER (H.V. OSC.)

ITEM No.	DC RES.				REPLACEMENT DATA				INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
T3	9.8Ω	8.1Ω	420Ω	0Ω	B-12D-1432				
				SEC. 4 100Ω					

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
L1	75MA	60Ω	3.5 Henries	A-12D-1028	C-2306*			

*Drill one new mounting hole.

PARTS LIST AND DESCRIPTION CONTINUED ON PAGE 8.

VOLTAGE AND RESISTANCE MEASUREMENTS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
V 1	6AG5	1.5 Meg.	0Ω	.1Ω	0Ω	5600Ω†	1200Ω#	0Ω	-	-
V 2	6AU6	1 Meg.	0Ω	0Ω	.1Ω	3900Ω†	60KΩ†	0Ω	-	-
V 3	6C4	20KΩ†	INF.	.2Ω	.1Ω	20KΩ†	15KΩ	2200Ω	-	-
V 4	6AG5	550KΩ	56Ω	.1Ω	0Ω	600Ω#	1300Ω#	56Ω	-	-
V 5	6AG5	550KΩ	56Ω	.1Ω	0Ω	1300Ω#	1300Ω#	56Ω	-	-
V 6	6AU6	15KΩ	0Ω	.1Ω	0Ω	11KΩ†	1300Ω#	82Ω	-	-
V 7	6AL5	8000Ω	55KΩ	1Ω	0Ω	.2Ω	550KΩ	.2Ω	-	-
V 8	6AU6	1 Meg.	0Ω	.1Ω	0Ω	8000Ω#	60Ω#	33Ω	-	-
V 9	6BA6	1 Meg.	0Ω	.1Ω	0Ω	5000Ω#	60Ω#	33Ω	-	-
V 10	6AU6	1 Meg.	15KΩ	.1Ω	0Ω	220KΩ#	60Ω#	15KΩ	-	-
V 11	6BA6	0Ω	0Ω	.1Ω	0Ω	1300Ω#	1300Ω#	56Ω	-	-
V 12	12H6	0Ω	13Ω	INF.	12KΩ	12KΩ	INF.	26Ω	INF.	-
V 13	12SQ7GT	0Ω	10 Meg.	0Ω	0Ω	0Ω	320KΩ†	13Ω	0Ω	-
V 14	6BA6	220KΩ	0Ω	.1Ω	0Ω	25KΩ†	25KΩ†	270Ω	-	-
V 15	12A6	0Ω	26Ω	3800Ω†	3400Ω†	500KΩ	3400Ω†	3+Ω	470Ω	-
V 16	6SN7GT	90KΩ	2200Ω#	0Ω	1 Meg.	12KΩ#	12KΩ	.1Ω	0Ω	-
V 17	6AL5	10 Meg.	10 Meg.	0Ω	1Ω	500Ω	0Ω	5000Ω	-	-
V 18	6SN7GT	5 Meg.	11KΩ†	1000Ω	220KΩ* 320KΩ*	500KΩ†* 2.5Meg.†*	1000Ω	.1Ω	0Ω	-
V 19	6SN7GT	5 Meg.	INF.	0Ω	5 Meg.	INF.	0Ω	0Ω	.1Ω	-
V 20	6SN7GT	45KΩ	60KΩ†	470Ω	500KΩ* 1 Meg.*	2 Meg.	470Ω	.1Ω	0Ω	-
V 21	6SN7GT	5 Meg.	INF.	22KΩ	390KΩ	INF.	22KΩ	0Ω	.1Ω	-
V 22	6V6GT	INF.	0Ω	400Ω†	8500Ω†	50KΩ	INF.	.1Ω	100Ω	-
V 23	1B3GT	INF.	INF.	INF.	INF.	INF.	INF.	INF.	INF.	600Ω†
V 24	6X4	540Ω†	INF.	INF.	INF.	INF.	INF.	INF.	-	-

	Pin 1	2	3	4	5	6	7	8	9	10	11	12	13	14
V 25	7JP4	0Ω	260KΩ	15KΩ	INF.	5 Meg.	INF.	20 Meg.	20 Meg.	20 Meg.	20 Meg.	20 Meg.	INF.	INF.	.1Ω

*MINIMUM AND MAXIMUM READINGS ARE GIVEN WHERE READINGS MAY VARY DEPENDING ON SETTING OF REAR PANEL CONTROLS.
#MEASURED FROM POSITIVE TERMINAL OF C2.
†MEASURED FROM POSITIVE TERMINAL OF C4.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
V 1	6AG5	-.6VDC	0V.	6VAC	0V.	215VDC	130VDC	0V.	-	-
V 2	6AU6	-1.8VDC	0V.	0V.	6VAC	225VDC	120VDC	0V.	-	-
V 3	6C4	110VDC	0V.	6VAC	0V.	110VDC	9VDC§	16VDC	-	-
V 4	6AG5	-.8VDC	.4VDC	6VAC	0V.	130VDC	130VDC	.4VDC	-	-
V 5	6AG5	-.4VDC	.4VDC	6.1VAC	0V.	130VDC	130VDC	.4VDC	-	-
V 6	6AU6	0V.	.8VDC	6.2VAC	0V.	175VDC	130VDC	0V.	-	-
V 7	6AL5	.2VDC	-.2VDC	5.2VAC	0V.	0V.	-.4VDC	0V.	-	-
V 8	6AU6	-.2VDC	0V.	6.3VAC	0V.	75VDC	130VDC	.3VDC	-	-
V 9	6BA6	-.1VDC	0V.	6.3VAC	0V.	40VDC	130VDC	.8VDC	-	-
V 10	6AU6	0V.	5VDC	6.3VAC	0V.	85VDC	130VDC	5VDC	-	-
V 11	6BA6	0V.	0V.	6.3VAC	0V.	115VDC	125VDC	1.2VDC	-	-
V 12	12H6	0V.	11VAC	.1VDC	.3VDC	-.3VDC	.1VDC	22VAC	.1VDC	-
V 13	12SQ7GT	0V.	-.5VDC	0V.	0V.	0V.	95VDC	11VAC	0V.	-
V 14	6BA6	0V.	0V.	6.3VAC	0V.	80VDC	80VDC	2VDC	-	-
V 15	12A6	0V.	22VAC	225VDC	235VDC	0V.	235VDC	33VAC	12VDC	-
V 16	6SN7GT	.1VDC	105VDC	0V.	4VDC	90VDC	95VDC	6.3VAC	0V.	-
V 17	6AL5	1.5VDC	-2.2VDC	0V.	5.2VAC	0V.	0V.	0V.	-	-
V 18	6SN7GT	0V.	175VDC	5VDC	4VDC	70VDC	5VDC	6.3VAC	0V.	-
V 19	6SN7GT	-9VDC	205VDC	0V.	-5.5VDC	320VDC	0V.	0V.	6.3VAC	-
V 20	6SN7GT	.3VDC	50VDC	1.4VDC	-10VDC	50VDC	1.4VDC	6.3VAC	0V.	-
V 21	6SN7GT	0V.	250VDC	19VDC	0V.	340VDC	119VDC	0V.	6.3VAC	-
V 22	6V6GT	0V.	0V.	340VDC	290VDC	-17VDC	0V.	6.3VAC	5VDC	-
V 23	1B3GT	##DO NOT MEASURE.								
V 24	6X4	##	0V.	6.3VAC††	6.3VAC††	0V.	0V.	640VDC	-	-

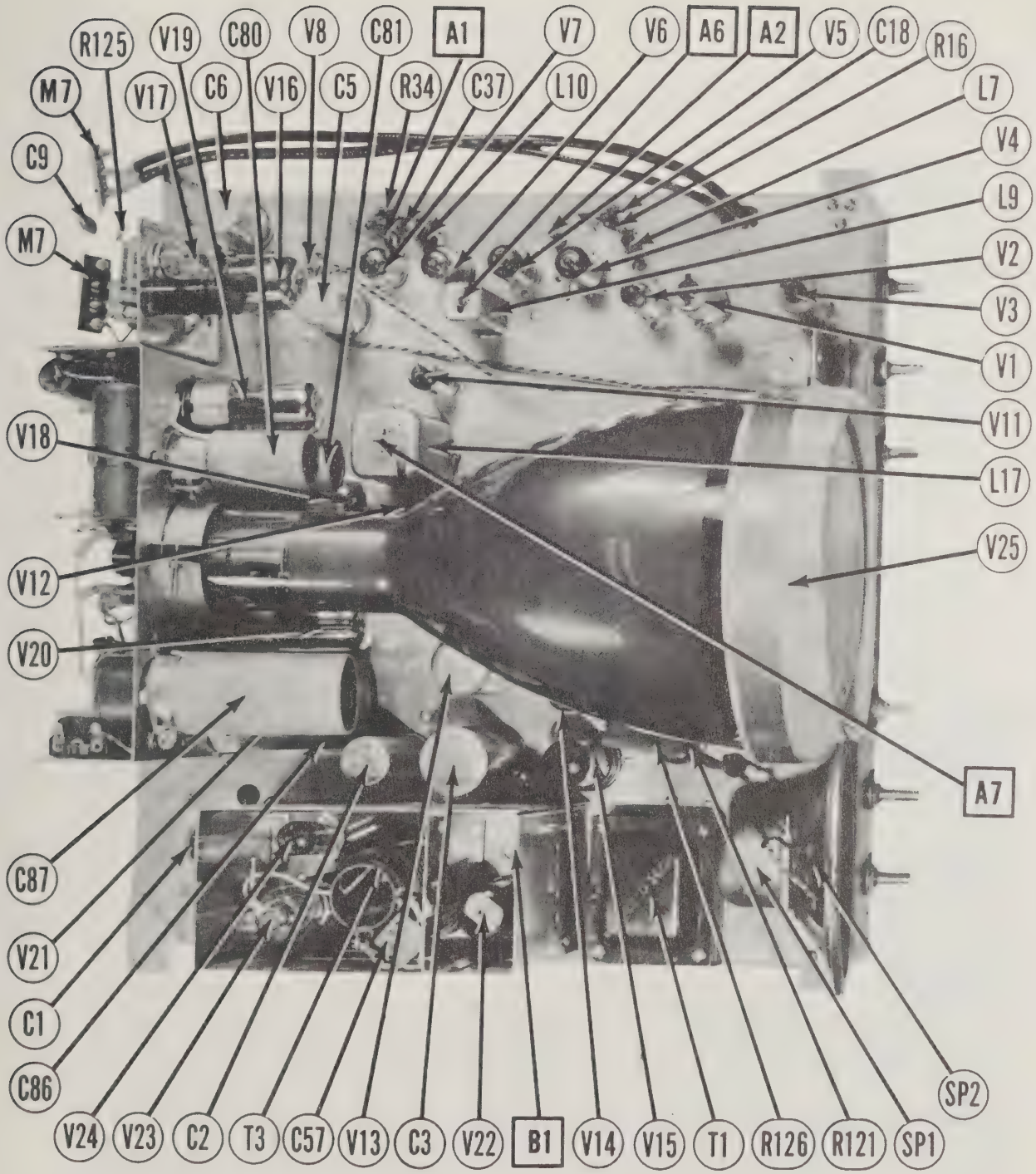
	Pins 1	2	3	4	5	6	7	8	9	10	11	12	13	14
V 25	7JP4	0V.	60VDC	5VDC	0V.	DO NOT MEASURE.								6.3VAC

##DO NOT MEASURE.
††MEASURE 6.3V AC BETWEEN FILAMENT PINS.

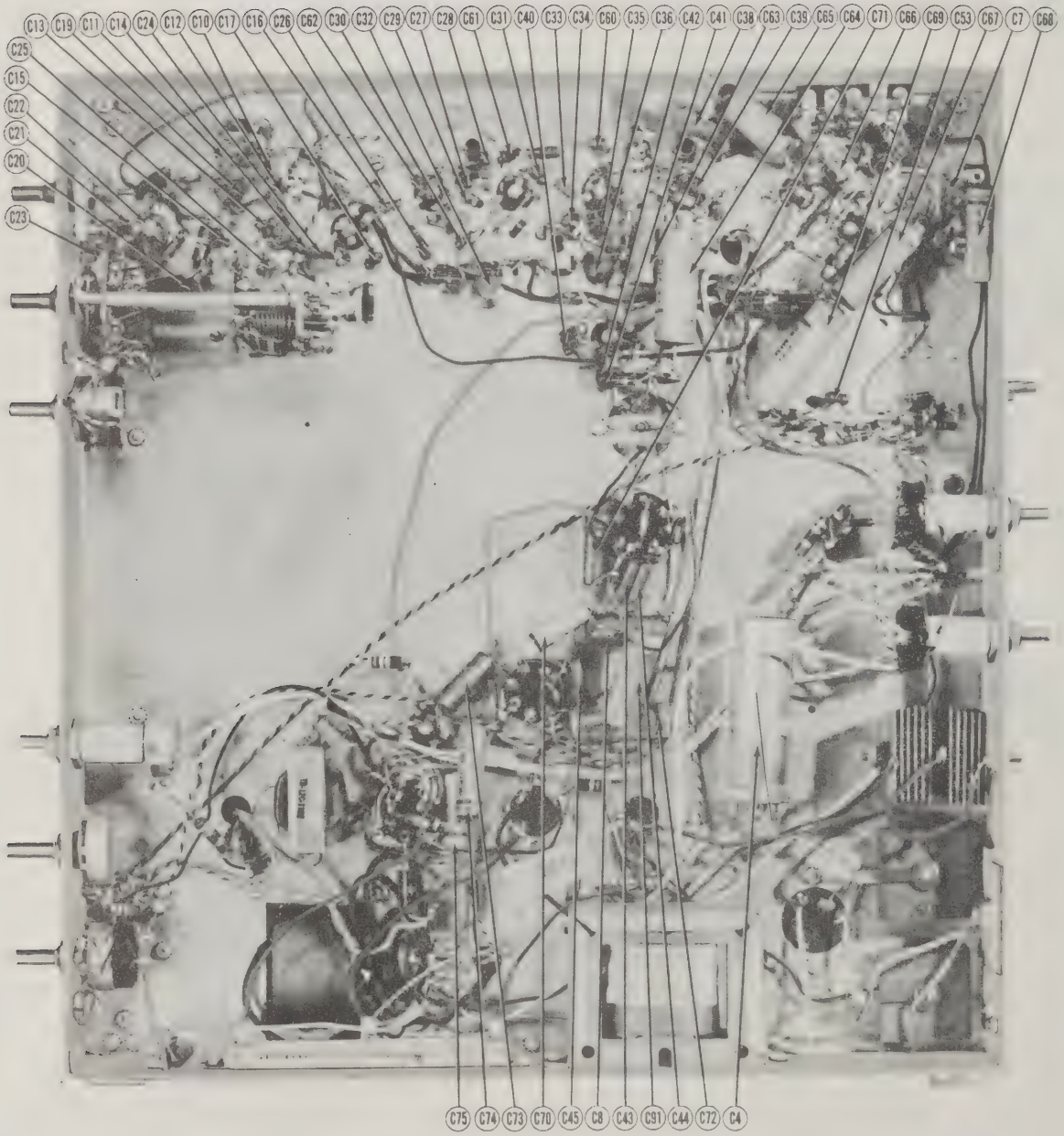
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at maximum.
6. Where readings may vary according to the setting of the rear panel controls, both minimum and maximum readings are given.

SILVERTONE MODEL 8130
TELEVISION RECEIVER

SCANNING CIRCUIT CHASSIS



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW - CAPACITOR IDENTIFICATION

DISSASSEMBLY INSTRUCTIONS

1. Remove six knobs on rear of set.
2. Remove two screws on right hand side of back cover.
3. Remove back cover and interlock.
4. Remove four nuts and bolts holding antenna terminal strips.
5. Remove four screws holding chassis to cabinet.
6. Remove six knobs on front panel.
7. Slide chassis out of cabinet.

HIGH VOLTAGE OSC. ADJUSTMENT

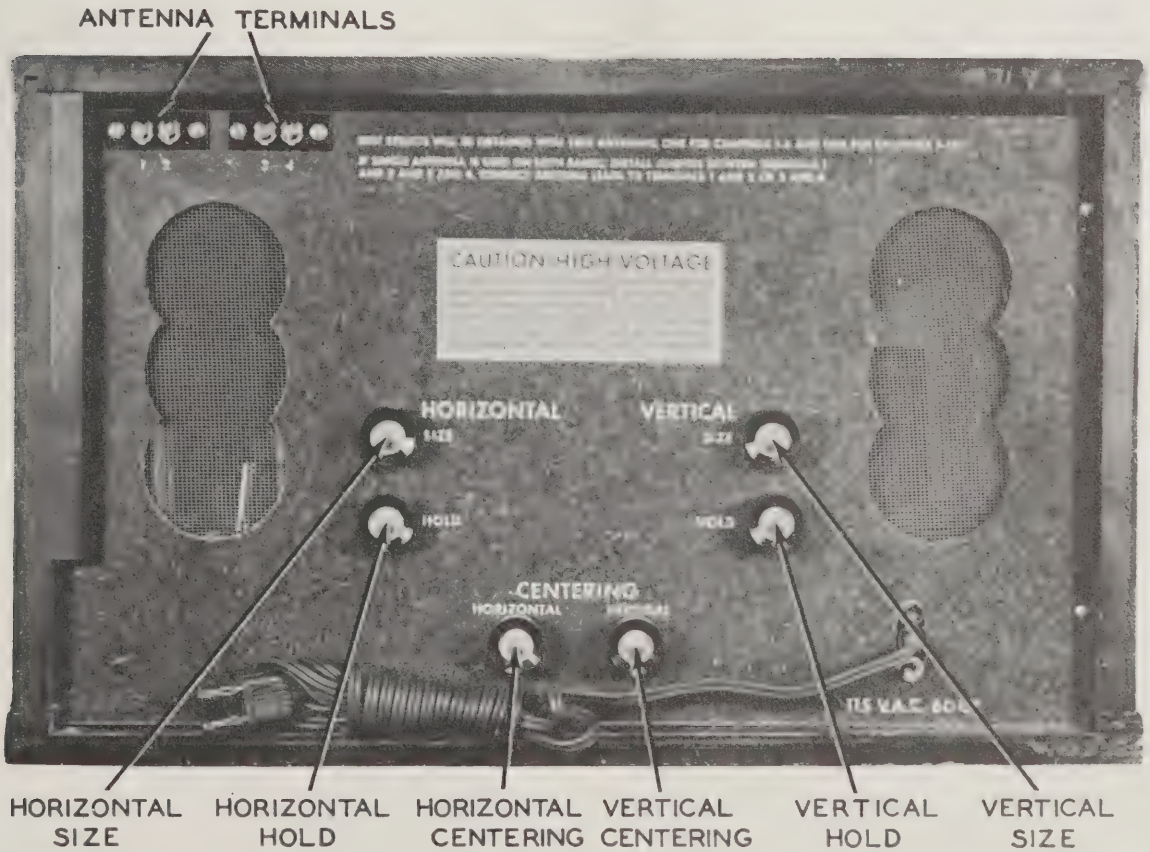
Using a vacuum tube voltmeter or other low drain meter, B1 should be adjusted for approximately 5000 volts. The setting should be on the high capacity side of resonance so that clockwise rotation of the capacitor causes the voltage to decrease.

HORIZONTAL LOCKING ADJUSTMENT

While receiving a picture or test pattern turn the contrast control down, or reduce the signal, until the picture falls out of synchronization. With the horizontal hold control at the center of its rotation, adjust B2 for horizontal synchronization.

HORIZONTAL LINEARITY ADJUSTMENT

B3 should be adjusted for best horizontal linearity on test pattern or cross hatch signal.



REAR PANEL CONTROLS

SPARTON MODEL 4AW17-A
(Ch. 417A) BATTERY OPERATED

SPARTON MODEL 4AW17-A
(Ch. 417A) BATTERY OPERATED

SPARTON MODEL 4AW17-A

TRADE NAME	Sparton, Model 4AW17-A (Ch. 417A)
MANUFACTURER	Sparks-Withington Co., Jackson, Mich.
TYPE SET	Battery Operated Portable Superheterodyne Receiver
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output
POWER SUPPLY	1.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form
RATING	265MA @ 1.5 Volts DC and 14.7MA @ 90 Volts DC
TUNING RANGE—BROADCAST	550-1750KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Standard RMA dummy antenna consists of a 200MMFD cap. in series with a 20 Microhenry choke, the choke being shunted by a 400 MMFD cap. in series with a 400Ω carbon resistor.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.02 MFD	High side to Pin 6 (grid) of 1R5. Low side to chassis.	456KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	.02 MFD.	High side to ant. lead. Low side to chassis.	"	Tuning cap. fully closed.	"	A5	Adjust for minimum output. The trimmer opposite A5 is a factory adjustment and ordinarily need not be adjusted.
3	RMA Dummy (See pre-alignment notes)	"	1500KC	1500KC	"	A6	Adjust for maximum output.
4	"	"	"	Tune for maximum output.	"	A7	Adjust for maximum output. Check calibration at 1000 and 600KC.

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DATE 11/48-#4819-22 SET #49-FOLDER #22

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	10	150	A9004-2	PRS150/10	BR1215	M-10-150	UT121	Power Supply Bypass
6	.5	200	B9002-GK504	484-.5	DT2P5	ST-2-5	TC-5	Filament Bypass
7	.05	200	B9002-GK503	484-05	DT2S5	ST-4-05	TC-15	RF Bypass Pwr. Supply
8	.005	400	B9002-GK502	484-005	DT6D5	ST-6-005	TC-25	Output Plate Bypass
9	.01	200	B9002-HK100	484-01	DT2S1	ST-4-01	TC-11	Audio Coupling
10	.005	400		484-005	DT6D5	ST-6-005	TC-25	" "
11	.01	200	B9002-HK103	484-01	DT2S1	ST-4-01	TC-11	AF Screen Bypass
12	.05	200	B9002-GK503	484-05	DT2S5	ST-4-05	TC-15	Screen Decoupling
13	.05	200	B9002-GK503	484-05	DT2S5	ST-4-05	TC-15	AVC Filter
14	240	500	B9001-G241	1468-00025	5W5T25	M0.5-325	1FM-325	AF Plate Bypass
15	240	500	B9001-G241	1468-00025	5W5T25	M0.5-325	1FM-325	Diode RF Filter
16	47	500	A9011-1	1468-00005	5W5Q5	M0.5-45	1FM-45	IF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	1 Meg.	½	A-18003-1	D13-137	AM-63-2	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	42	SW-A2	" " " " "

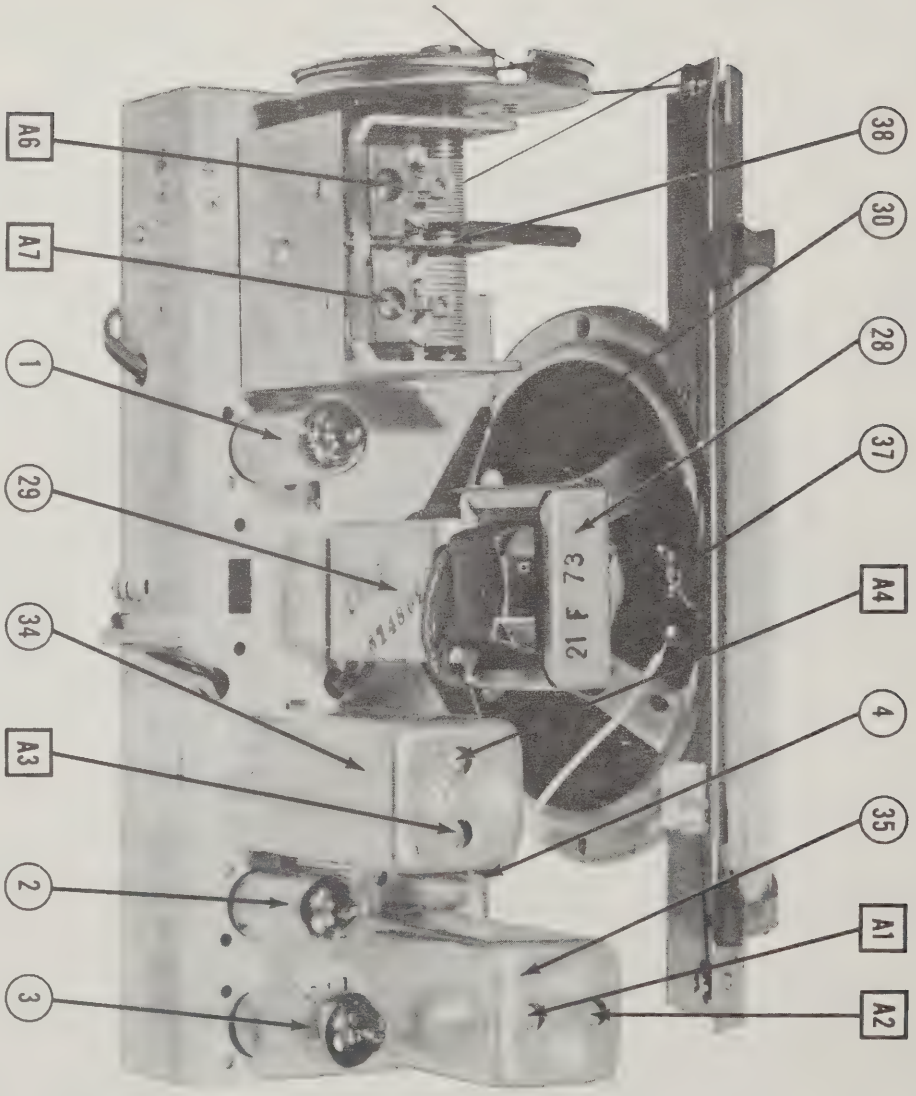
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES
18	100KΩ	½	C8000-12S104	BTS-100K	Br.-Blk.-Yl. Osc. Grid
19	6800Ω	½	C8000-12S682	BTS-6800	Blue-Gray-Red Screen Decoupling
20	4.7 Meg.	½	C8000-A12N475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
21	10 Meg.	½	C8000-A12N106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	4.7 Meg.	½	C8000-A12N475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen
23	1 Meg.	½	C8000-12S105	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate
24	3.3 Meg.	½	C8000-12N335	BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
25	330Ω	½	C8000-A12S331	BW-½-330	Or.-Or.-Br. Bias
26	10 Meg.	½	C8000-A12S106	BTS-10 Meg.	Br.-Blk.-Blue Bias
27	220KΩ	½	C8000-12N224	BTS-220K	Red-Red-Yl. Series Neon Light

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SPARTON PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	INSTALLATION NOTES
23	10300Ω	3.4Ω	330Ω	.6Ω	Part of C-7003	A-3879†	T22S47†	A-2932†	†Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: SPARTON PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
29	FIELD PM	VC IMP. 3.4Ω	C7003	ST-105 Mod. P5-X	5A15	
30	CONE DIA. 4-3/4"	VC DIA. 9/16"				

R F COILS

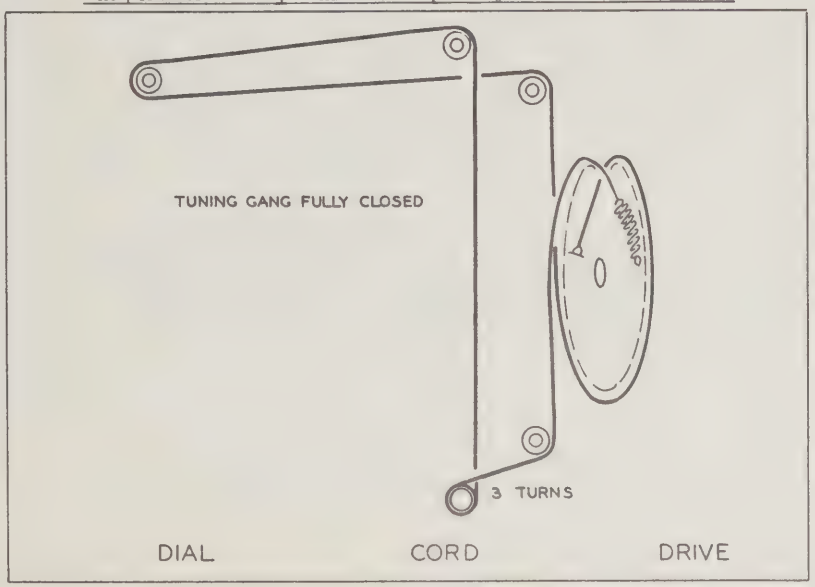
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SPARTON PART No.	MEISSNER PART No.	
31	Wave Trap Coil		27Ω	A5005-1		
32	Ant. Coil	45Ω	3Ω	A5006	14-1056	
33	Osc. Coil	1.4Ω	6.5Ω	A5024	14-1060*	*Add 50 MMFD cap. from high side of tuning cap. to osc. grid
34	Input IF	11Ω	11Ω	A5008-1	16-6658	
35	Output IF	12.2Ω	10Ω	A5008-2	16-6660	

BATTERIES

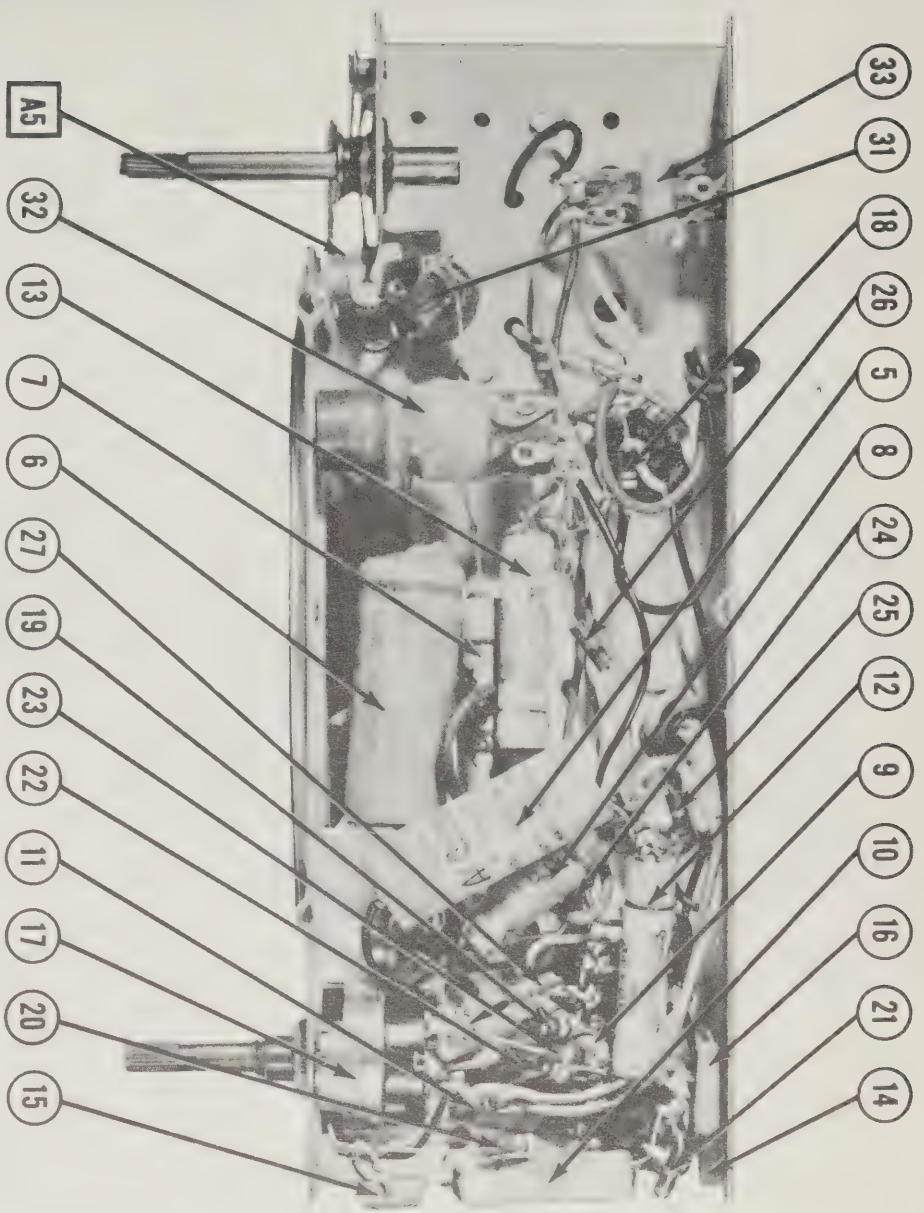
ITEM No.	VOLTAGE	SPARTON PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
36	1.5V "A" 90V "B"				758			17GD60	

MISCELLANEOUS

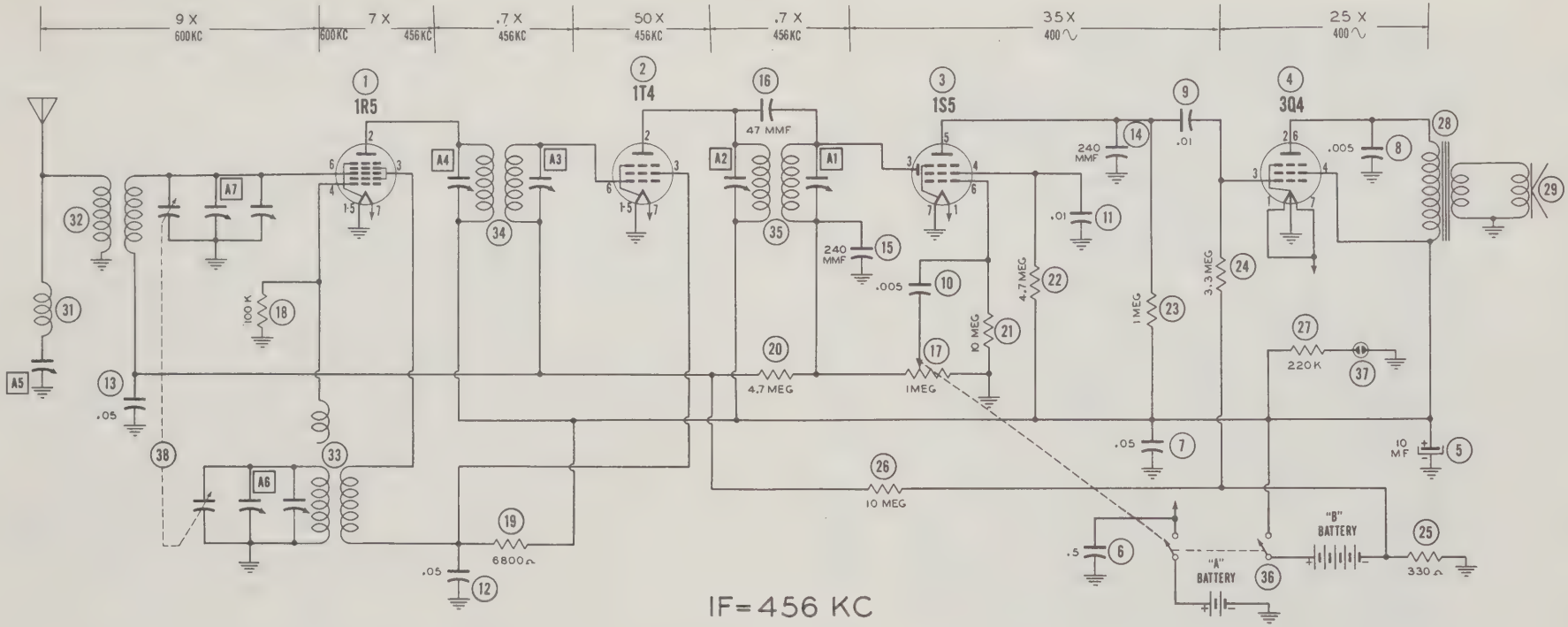
ITEM No.	PART NAME	SPARTON PART No.	NOTES
37	Lamp	A19002	Neon
38	2 Gang Var. Cap	C11000-1	(29-445MMF, 38-196MMF)
A5	Trimmer	A1000-4	IF Reject



CHASSIS—BOTTOM VIEW



SPARTON MODEL 4AW17-A



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	82VDC	55VDC	-5.8VDC§	0V.	-.1VDC	1.5VDC
2	1T4	1.5VDC	82VDC	55VDC	50VDC	1.5VDC	-.1VDC	0V.
3	1S5	0V.	-.1VDC	-.1VDC	3.4VDC	0VDC	0V.	1.5VDC
4	3Q4	1.5VDC	78VDC	-.4VDC	82VDC	0V.	78V.C	1.5VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0Ω	90KΩ	97KΩ	100KΩ	0Ω	4 Meg.	*
2	1T4	*	90KΩ	97KΩ	360KΩ	*	4 Meg.	0Ω
3	1S5	0Ω	90KΩ	1 Meg.	4.8 Meg.	1.1 Meg.	10 Meg.	*
4	3Q4	*	90KΩ	3.3 Meg.	90KΩ	0Ω	90KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4819-22

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements

STROMBERG-CARLSON MODEL 1235-PLM

TRADE NAME	Stromberg-Carlson, Model 1235 Series
MANUFACTURER	Stromberg-Carlson Co., 1100 Carlson Rd., Rochester 3, N.Y.
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna
TUBES (SIXTEEN)	Types, 6SG7 RF Amp., 6SB7Y Converter, 6SG7 1st IF Amp., 6SH7 2nd IF Amp., 6SJ7 1st Limiter, 6SJ7 2nd Limiter, 6H6 Discriminator, 6SQ7 FM Tuning Ind. Amp., 6SL7GT FM Tuning Ind. Amp., 6SQ7 AM Det.-Squelch, 6U5 Tuning Eye, 6SQ7 1st AF Amp., 6SL7GT 2nd AF-Phase Inv., (2) 6L6G Power Output, 5R4GY Rectifier.
POWER SUPPLY	105-125 Volts AC RATING 1.6 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1620KC SHORT WAVE 8.8-10.2MC, 11.2-12.6MC FREQ. MOD. 42-50MC, 88-108MC

PUSHBUTTON ADJUSTMENTS

1. Determine number of stations to be set up on each of the FM bands and the broadcast band. The total number can not exceed eight.
2. Remove pushbutton terminal setup cover at rear of chassis.(CAUTION-Do not remove this cover with power on.) Connect a jumper from AM terminal to as many numbered terminals as pushbuttons to be set up on broadcast band. The numbers on terminal strip correspond to the pushbuttons on front panel.
3. Connect a jumper from "FM1" terminal to as many numbered terminals as pushbuttons to be set up on FM1 Band.
4. Connect a jumper from "FM2" terminal to as many numbered terminals as pushbuttons to be set up on FM2 Band. IF there is no station which can be received on either or both of the FM bands all buttons may be setup on the band or bands where stations can be received. However it is recommended that at least one button be set up on each FM band as this is the only means of getting bandswitch to these bands.
5. Replace terminal cover and turn on receiver and allow to warm up for at least 15 minutes.
6. Remove (by pulling out) pushbuttons from the upper row of eight pushbutton shafts.
7. Loosen set screws on each button shaft about one turn.
8. Push in any broadcast button shaft. Carefully tune in desired station and slowly release button and tighten set screw firmly. Set up the remaining buttons by following same procedure as above.
9. When setting up a button on either of the FM bands it is necessary to depress the corresponding FM button to switch the receiver to the correct band. Procedure is then the same as outlined in Step 8 above.

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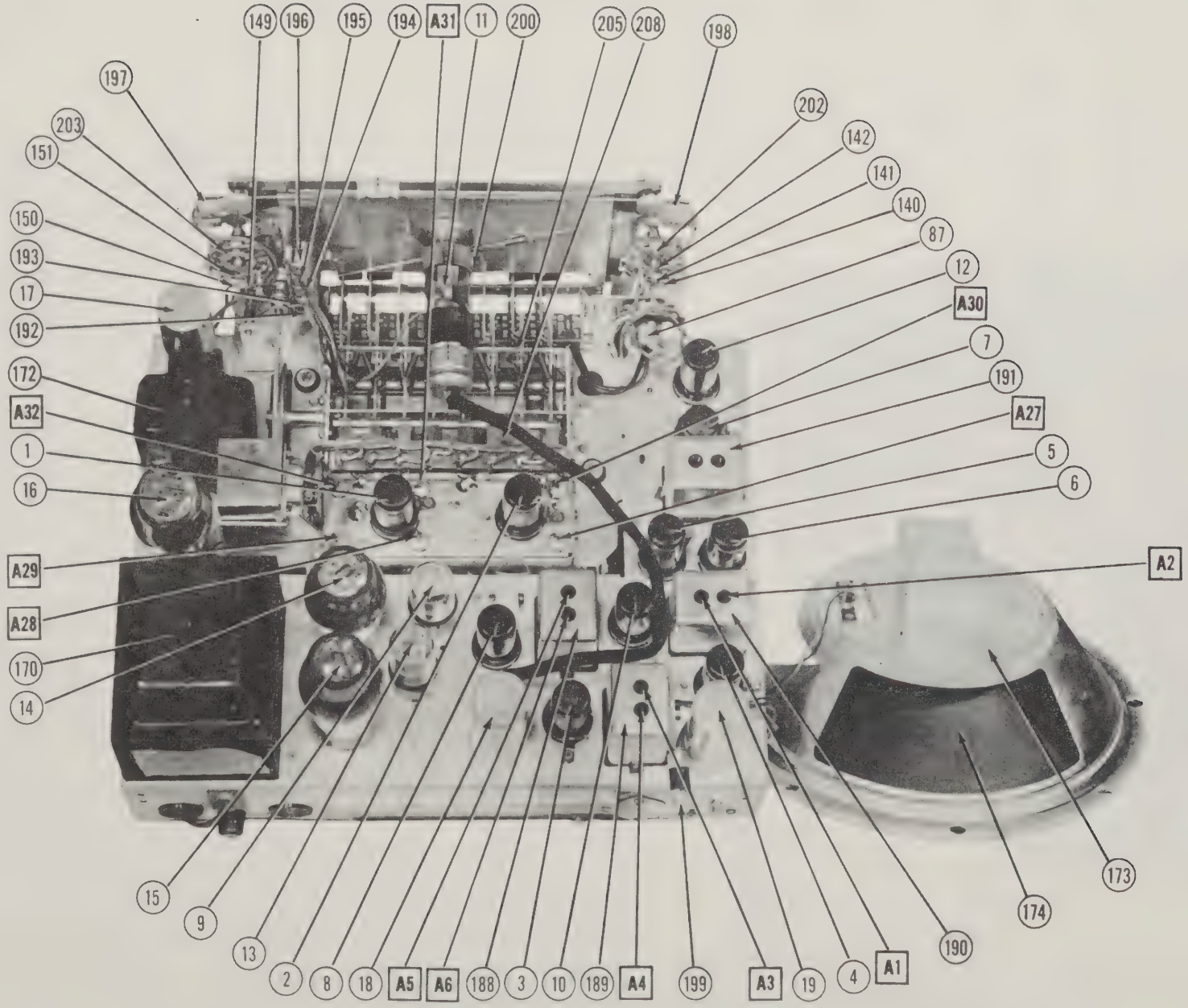
DATE 11/48-#4819-23 SET #49-FOLDER #23

STROMBERG-CARLSON
1235 SERIES

STROMBERG-CARLSON
1235 SERIES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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SG7	6SG7	8BK	
2	Converter	6SB7Y	6SB7Y	8R	
3	1st IF Amp.	6SG7	6SG7	8BK	
4	2nd IF Amp.	6SH7	6SH7	8BK	
5	1st Limiter	6SJ7	6SJ7	8N	
6	2nd Limiter	6SJ7	6SJ7	8N	
7	Discriminator	6H6	6H6	7Q	
8	FM Tuning Ind. Amp.	6SQ7	6SQ7	8Q	
9	" "	6SL7GT	6SL7GT	8BD	
10	AM Det.-Squelch	6SQ7	6SQ7	8Q	
11	Tuning Eye	6U5	6U5	6R	
12	1st AF Amp.	6SQ7	6SQ7	8Q	
13	2nd AF-Inverter	6SL7GT	6SL7GT	8BD	
14	Power Output	6L6G	6L6G	7AC	
15	" "	6L6G	6L6G	7AC	
16	Rectifier	5R4GY	5R4GY	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STROMBERG.-CAR. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
17	20	450	111006	G450-20	KR520	D-20-450	PLS-20	Filter
18A	40	400	111007	AF444J▲	UP4245	DY-3x20-450▲	EL-425▲†	▲ "
B	20	300						■ "
19A	40	400	111005	AF88J	UP9DJ55	DY-406	EL-432	◓ "
B	40	300		PRS250/20				■ "
C	20	250						
20	50	50	111012	PRS50/50	BR505	M-50-50	TA-550	▲ Decoupling
21	20-24	75AC						Cathode Bypass
22	.003	600		684-003	DT6D3	ST-6-003	TC-23	Hash Filter
23	.05	400	40632	484-05	DT4S5	ST-4-05	TC-15	Tone Compensation
24	.02	400	25150	484-02	DT4S2	ST-4-02	TC-12	" "
25	.1	200	28325	484-.1	DT2P1	ST-2-1	TC-1	" "
26	.05	400	40632	484-05	DT4S5	ST-4-05	TC-15	" "
27	.01	400		484-01	DT4S1	ST-4-01	TC-11	Audio Coupling
28	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	" "
29	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	Tone Compensation
30	.05	400	40632	484-05	DT4S5	ST-4-05	TC-15	Audio Coupling
31	.02	600	25484	684-02	DT6S2	ST-6-02	TC-12	" "
32	.05	600	29891	684-05	DT6S5	ST-6-05	TC-15	" "
33	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	AVC Filter
34	.1	200	28325	484-.1	DT2P1	ST-2-1	TC-1	Grid Filter
35	.1	200	28325	484-.1	DT2P1	ST-2-1	TC-1	" "
36	.003	400	46315	484-003	DT4D3	ST-6-003	TC-23	Audio Coupling
37	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	RF Bypass Pwr. Supply
38	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	Disc. Fil. Bypass
39	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	2nd Limiter Plate Decoup.
40	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	2nd Limiter Screen Bypass
41	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	1st Limiter Screen. Byp.
42	.01	400		484-01	DT4S1	ST-4-01	TC-11	1st Limiter Grid Filter
43	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	AVC Filter
44	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	2nd IF Plate Decoup.
45	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	2nd IF Screen Bypass
46	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	1st IF Plate Decoup.
47	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	1st IF Screen Bypass
48	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	AVC Filter
49	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	Conv. Plate Decoup.
50	.005	600	110419	684-005	DT6D5	ST-6-005	TC-25	Conv. Screen Bypass
51	.1	400	28325	484-.1	DT4P1	ST-4-1	TC-1	RF Screen Bypass
52	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	RF Plate Decoup.
53	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	AVC Filter
54	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	" "
55	.05	600	29891	684-05	DT6S5	ST-6-05	TC-15	Audio Coup.
56	.05	600	29891	684-05	DT6S5	ST-6-05	TC-15	Feedback
57	.01	600	24585	684-01	DT6S1	ST-6-01	TC-11	RF Bypass Pwr. Supply
58	750	500	110215	1468-00075	1W5T7	MW.5-37	1FM-37	Tone Compensation
59	50	500	34796	1468-00005	5W5Q5	MO.5-45	1FM-45	AF Plate Bypass
60	100	500	34800	1468-0001	5W5T1	MO.5-31	1FM-31	Tone Compensation
61	100	500	34800	1468-0001	5W5T1	MO.5-31	1FM-31	" "

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	IRC PART No.	IDENTIFICATION CODES
125	150KΩ	½	27640	BTS-150K	Br.-Grn.-Yl. Tun. Eye Amp. Cathode Bias
126	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. Tuning Eye Amp. Plate Load
127	33KΩ	½	28175	BTS-33K	Or.-Or.-Or. Tuning Eye Amp. Plate Bleeder
128	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. Tuning Eye Amp. Grid
129	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. Tun. Eye Amp. Grid
130	1800Ω	½	28161	BTS-1800	Br.-Gray-Red Tun. Eye Amp. Cathode
131	390KΩ	½	28186	BTS-390K	Or.-White-Yl. Tuning Eye Plate Load
132	680KΩ	½	28189	BTS-680K	Blue-Gray-Yl. Tun. Eye Amp. Plate Load
133	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. Series Wire Recorder
134	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. Series Wire Recorder Shunt
135	2200Ω	½	28162	BTS-2200	Red-Red-Red Tone Compensation
136	10KΩ	½	28170	BTS-10K	Br.-Blk.-Or. " "
137	10 Meg.	½	149125	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
138	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. 1st AF Plate Load
139	56KΩ	½	28178	BTS-56K	Grn.-Blue-Or. 1st AF Grid Decoup.
140	15KΩ	½	28172	BTS-15K	Br.-Grn.-Or. Tone Compensation
141	47KΩ	½	28177	BTS-47K	Yl.-Vi.-Or. " "
142	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. " "
143	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. " "
144	15KΩ	½		BTS-15K	Br.-Grn.-Or. 2nd AF Grid
145	150KΩ	½	27640	BTS-150K	Br.-Grn.-Yl. 2nd AF Plate Load
146	560Ω	½	28155	BTS-560	Grn.-Blue-Br. 2nd AF Cathode
147	470KΩ	½	28187	BTS-470K	Yl.-Vi.-Yl. Phase Inv. Grid
148	150KΩ	½	27640	BTS-150K	Br.-Grn.-Yl. Phase Inv. Plate Load
149	1.5 Meg.	½	28193	BTS-1.5 Meg.	Br.-Grn.-Grn. Tone Comp.
150	68KΩ	½	28179	BTS-68K	Blue-Gray-Or. " "
151	27KΩ	½	28174	BTS-27K	Red-Vi.-Or. " "
152	270KΩ	½	28184	BTS-270K	Red-Vi.-Yl. Output Grid
153	270KΩ	½	28184	BTS-270K	Red-Vi.-Yl. " "
154	6800Ω	½	28168	BTS-6800	Blue-Gray-Red " "
155	1000Ω	½	28158	BTS-1000	Br.-Blk.-Red Tone Compensation
156	1000Ω	½	28158	BTS-1000	Br.-Blk.-Red " "
157	150Ω	5	149246	AB-150	Output Cathode
158	2.2 Meg.	½	149121	BTS-2.2 Meg.	Red-Red-Grn. Feedback
159	5000Ω	5	149207	AB-5000	Tone Compensation
160	220KΩ	½	28183	BTS-220K	Red-Red-Yl. Series Phono
161	220KΩ	½	28183	BTS-220K	Red-Red-Yl. " "
162	68KΩ	½	28179	BTS-68K	Blue-Gray-Or. Tone Compensation
163	1000Ω	5	149247	AB-1000	Voltage Divider
164A	500Ω	6	149010	AB-500	" "
B	4000Ω	3.2		AB-4000	" "
165	2200Ω	2	149078	BT-2-2200	Red-Red-Red " "
166	2700Ω	1	149180	BTA-2700	Red-Vi.-Red " "
167	3900Ω	1	149182	BTA-3900	Or.-White-Red " "
168	820Ω	½	28157	BTS-820	Gray-Red-Br. " "
169	1 Meg.	½	149007	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: STROMBERG-CAR. PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
170	117V AC @ 1.6A	700V CT .22A DC	5.0V AC @ 2.0A	6.4V AC @ 6.2A	161403			
			SEC. 4: 6.5V CT @ .3A	SEC. 5: 50V AC @ 1.0A				

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: STROMBERG-CARLSON PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	INSTALLATION NOTES
171	.22A	58Ω	4.5 Henries	161002				

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
172	5200Ω CT	5.7Ω	215Ω CT	.4Ω	161230	A-3310	T22S70*	A-3131*	*Drill new mounting holes.

PARTS LIST AND DESCRIPTIONS (Continued)

62	2500	500	29559	1467-0025	1W5D25	MW.5-225		Tone Compensation
63	750	500	110215	1468-00075	1W5T7	MW.5-37	1FM-37	" "
64	390	500	110216	1468-0004	5W5T4	MO.5-34	1FM-34	De-emphasis
65	75	500	29359	1468-000075	5W5Q7	MOS.5-47	1FM-47	Disc. Filter
66	470	500	110219	1468-0005	5W5T5	MO.5-35	1FM-35	2nd Limiter Cath. Byp.
67	47	300	110402	1468-00005	5W5Q5	MO.5-45	1FM-45	IF Coupling
68	100	500	34800	1468-0001	5W5T1	MO.5-31	1FM-31	Diode RF Filter
69	50	500	34796	1468-00005	5W5Q5	MO.5-45	1FM-45	" " "
70	47	300	110402	1468-00005	5W5Q5	MO.5-45	1FM-45	IF Coupling-Cer.
71	47	300	110402	1468-00005	5W5Q5	MO.5-45	1FM-45	" " "
72	47	300	110402	1468-00005	5W5Q5	MO.5-45	1FM-45	" " "
73	1000	300	110408	1467-001	1W5D1	MW.5-21	1FM-21	Conv. Fil. Bypass-Cer.
74	1000	300	110408	1467-001	1W5D1	MW.5-21	1FM-21	Conv. Screen Byp.- "
75	100	300	110401	1469-0001	5R5T1	MOS.5-31	MS-31	Osc. Grid Cap.-Cer.
76	10	300	110411	1469-00001	5R5Q1	MOS.5-41	MS-41	Fixed Trimmer-Cer.
77	370	500						Fixed Padder
78	47	300	110402					" " -Cer.
79	5	300						Fixed Trimmer-Cer.-Note
80	2.5	300	110412					" " "
81	1000	300	110408	1467-001	1W5D1	MW.5-21	1FM-21	RF Screen Bypass-Cer.
82	100	300	110401	1468-0001	5W5T1	MO.5-31	1FM-31	RF Coupling-Cer.
83	100	300	110401	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
84	10	500	110202	1469-00001	5R5Q1			Fixed Trimmer
85	100	500	34800	1468-0001	5W5T1	MO.5-31	1FM-31	Ant. Coupling
86	2	300						Conv. Cathode Bypass

#-Parallel sections to obtain desired capacity.
‡-Omit one section.
Note-Special temperature compensated capacitor. Obtain from manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	STROMBERG-CARLSON PART No.	IRC PART No.	CLAROSTAT PART No.	
87A	1 Meg.	½	145002	D13-137X	T-109	Volume Control tapped @ 200KΩ
B	Shaft		Not Req.	A	Not Req.	Attach to 87A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STROMBERG-CARLSON PART No.	IRC PART No.	
88	100KΩ	½	149007	BTS-100K	Br.-Blk.-Yl. AVC Network
89	22KΩ	½	149005	BTS-22K	Red-Red-Or. RF Plate Load
90	1000Ω	½	28158	BTS-1000	Br.-Blk.-Red RF Plate Decoupling
91	68KΩ	½	28179	BTS-68K	Blue-Gray-Or. RF Screen Dropping
92	4700Ω	½	149004	BTS-4700	Yl.-Vi.-Red Broadcast RF Coil Shunt
93	1000Ω	½	28158	BTS-1000	Br.-Blk.-Red Conv. Cathode
94	1000Ω	½	28158	BTS-1000	Br.-Blk.-Red Conv. Plate Decoup.
95	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. Conv. Grid
96	33KΩ	½	28175	BTS-33K	Or.-Or.-Or. Osc. Grid
97	1 Meg.	½	149007	BTS-1 Meg.	Br.-Blk.-Grn. 1st IF Grid
98	39KΩ	½	28176	BTS-39K	Or.-White-Or. 1st IF Screen
99	1000Ω	½	28158	BTS-1000	Br.-Blk.-Red 1st IF Plate Decoup.
100	1 Meg.	½	149007	BTS-1 Meg.	Br.-Blk.-Grn. 2nd IF Grid
101	33KΩ	½	28175	BTS-33K	Or.-Or.-Or. 2nd IF Screen Dropping
102	56KΩ	½	28178	BTS-56K	Grn.-Blue-Or. 2nd IF Screen Bleeder
103	1000Ω	½	28158	BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoup.
104	10KΩ	½	28170	BTS-10K	Br.-Blk.-Or. Diode Filter
105	150KΩ	½	27640	BTS-150K	Br.-Grn.-Yl. Diode Load
106	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. " "
107	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
108	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. " "
109	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. " "
110	22KΩ	½	149005	BTS-22K	Red-Red-Or. 1st Limiter Grid
111	1200Ω	½	28159	BTS-1200	Br.-Red-Red " " "
112	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. " " "
113	1 Meg.	½	28191	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
114	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. 1st Limiter Plate Load
115	15KΩ	½	28172	BTS-15K	Br.-Grn.-Or. 1st Limiter Screen Dropping
116	10KΩ	½	28170	BTS-10K	Br.-Blk.-Or. Decoupling
117	10KΩ	½	28170	BTS-10K	Br.-Blk.-Or. Voltage Dropping
118	1.5 Meg.	½	28193	BTS-1.5 Meg.	Br.-Grn.-Grn. 2nd Limiter Grid Bias
119	47KΩ	½	28177	BTS-47K	Yl.-Vi.-Or. 2nd Limiter Grid Bias
120	10KΩ	½	28170	BTS-10K	Br.-Blk.-Or. 2nd Limiter Cathode
121	100KΩ	½	28006	BTS-100K	Br.-Blk.-Yl. 2nd Limiter Plate Decoup.
122	220KΩ	½	28163	BTS-220K	Red-Red-Yl. Disc. Load
123	220KΩ	½	28163	BTS-220K	Red-Red-Yl. " "
124	56KΩ	½	28173	BTS-56K	Grn.-Blue-Or. De-emphasis

DATE 11/48-#4919-23 SET #49-FOLDER #23

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			STROMBERG-CARLSON PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-102		
173	PM	5.7Ω	48997	Mod. P12-8	12A4	
	CONE DIA.	VC DIA.				
174	11-3/4"	7/8"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	STROMBERG-CARLSON PART No.	MEISSNER PART No.	
175	BC Loop Ant.		0Ω			
176	FM Dipole					
177A	BC Ant.Coil	0Ω	4.3Ω	114005		
B	SW 1 " "	0Ω	.5Ω			
178	SW 2 " "		1.5Ω	‡		‡Items 178, 181 and 185 may be obtained as complete assembly under Part #114020.
179A	FM Ant.Coil Pri.	0Ω				
B	FM 2 Ant. Coil Sec.		0Ω			
C	FM 1 Ant. Coil Sec.		0Ω			
180A	BC RF Coil		3.9Ω	114003		
B	SW 1 RF Coil		.4Ω			
181	SW 2 " "		1.5Ω	‡		
182	FM 2 " "		0Ω			
183	FM 1 " "		0Ω			
184A	BC Osc.Coil		5.2Ω	114004		
B	SW 1 " "		.4Ω			
185	SW 2 " "		1.5Ω	‡		
186	FM 2 " "		0Ω			
187	FM 1 " "		0Ω			
188A	1st IF AM	6Ω	6.5Ω	161200		
B	1st IF FM	.5Ω	.5Ω			
189A	2nd IF AM	6Ω	6Ω	161200		
B	2nd IF FM	.5Ω	.5Ω			
190A	3rd IF AM	6Ω	6Ω	161201		
B	3rd IF FM	.5Ω	.5Ω			
191	Disc. IF	.6Ω	.2Ω			

DIAL LIGHT

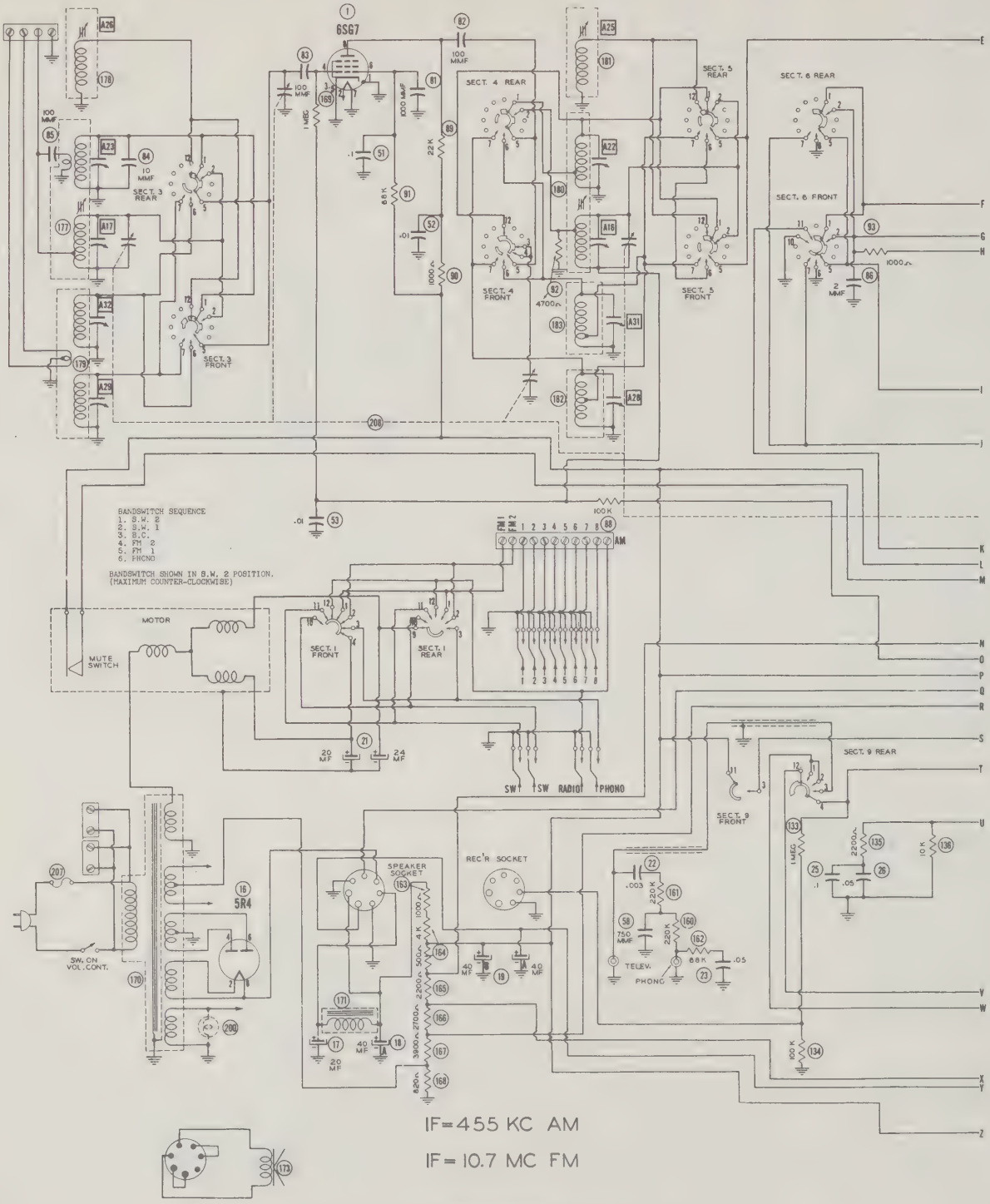
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					STROMBERG-CARLSON PART No.		
192-200	Bayonet	6-8	0.25	Blue	29956		Type 44

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA		REMARKS
	STROMBERG. PART No.	ASTATIC PART No.	
201		QT3-M	QT3-M Original Part

MISCELLANEOUS

ITEM No.	PART NAME	STROMBERG-CAR. PART No.	NOTES
202	Switch	158005	Bass Tone
203	"	158006	Treble Tone
204	"	158019	Band Phono
205	"		Pushbutton
206	"	158014	Squelch
207	Fuse	25156	(3AG) 3 Amp.
208	Tuning Gang		(8-432MMF, 8-432MMF, 32-352MMF)
A32	Trimmer	110007	FM Ant. Adj. (HF)
	"	110006	A27,A28,A29,A30,A31



STAGE GAIN MEASUREMENTS		
ANTENNA TO RF GRID	1.5X	1400KC
RF GRID TO CONVERSION GRID	110X	1400KC
CONVERSION GAIN	4.5X	IN 1400KC
		OUT 455KC
CONV. GRID TO 2nd IF GRID	2mX	455KC
2nd IF GRID TO DET. DIODE	40X	455KC
1st AUDIO GRID TO OUTPUT	745X	4KC

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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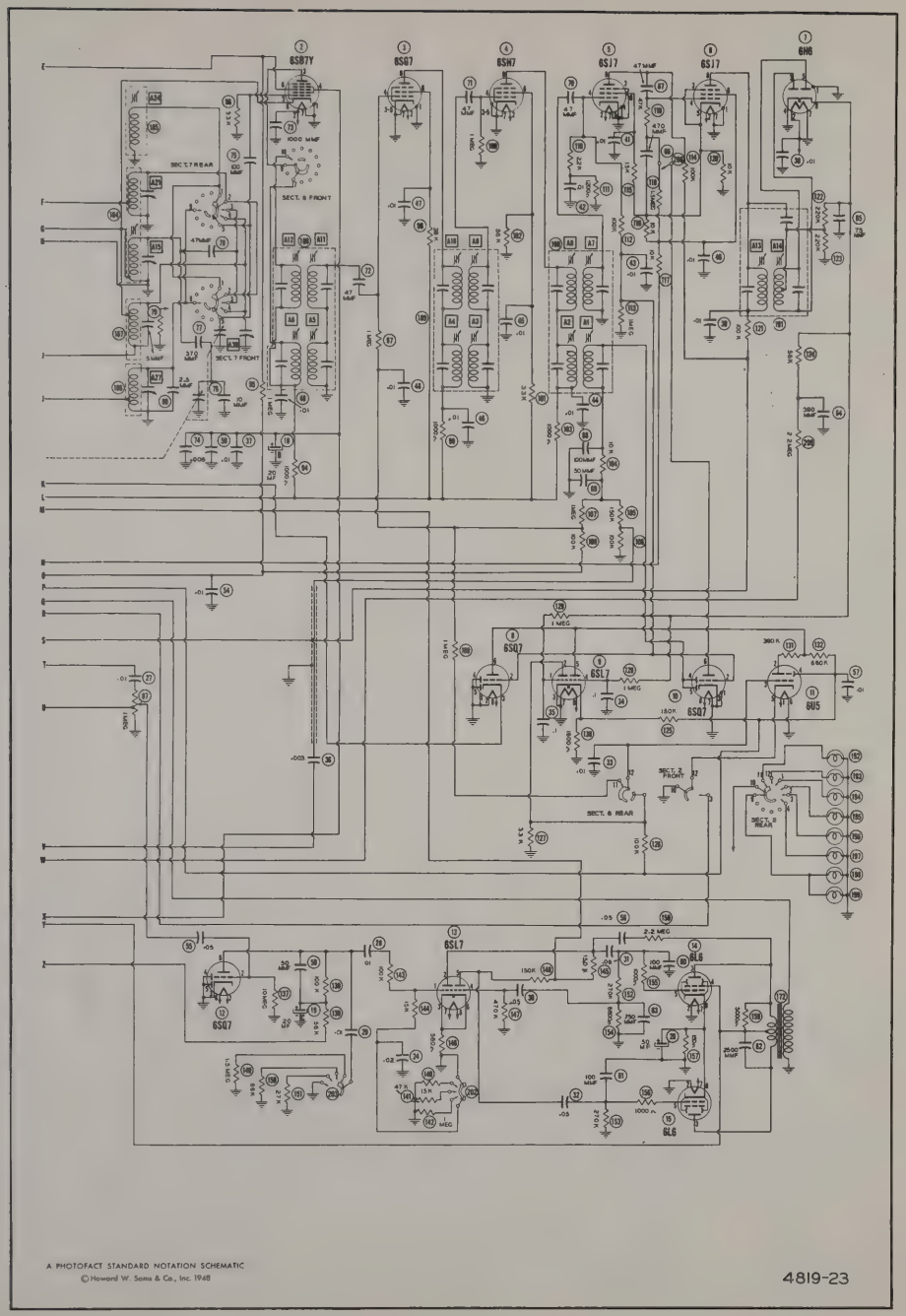

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4819-23

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
SQUELCH SWITCH ON.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0V.	6.4VAC	0V.	-.5VDC	0V.	90VDC	0V.	110VDC
2	6SB7Y	0V.	6.4VAC	240VDC	90VDC	-10VDC§	0V.	0V.	0V.
3	6SG7	0V.	6.4VAC	0V.	-.7VDC	100VDC	0V.	0V.	240VDC
4	6SH7	0V.	6.4VAC	0V.	-.6VDC	0V.	100VDC	0V.	240VDC
* 5	6SJ7	0V.	6.4VAC	0V.	-.4VDC	0V.	35VDC	0V.	70VDC
* 6	6SJ7	0V.	6.4VAC	40VDC	17VDC	40VDC	90VDC	0V.	240VDC
* 7	6H6	0V.	6.4VAC	-.8VDC	0V.	-.8VDC	-.2VDC	0V.	-.2VDC
* 8	6SQ7	0V.	-.5VDC	0V.	0V.	0V.	50VDC	0V.	6.4VAC
* 9	6SL7GT	0V.	50VDC	0V.	0V.	50VDC	3VDC	0V.	6.4VAC
* 10	6SQ7	0V.	-.5VDC	0V.	-.4VDC	-.4VDC	9VDC	0V.	6.4VAC
11	6U5	-	-	-	-	-	-	-	-
12	6SQ7	0V.	-.7VDC	0V.	0V.	0V.	125VDC	11VDC†	11VDC†
13	6SL7GT	0V.	100VDC	3VDC	0V.	100VDC	3VDC	6.4VAC	0V.
14	6L6G	0V.	6.4VAC	340VDC	360VDC	0V.	310VDC	0V.	26VDC
15	6L6G	0V.	6.4VAC	340VDC	360VDC	0V.	310VDC	0V.	26VDC
16	5R4GY	0V.	370VDC	0V.	350VAC	350VDC	350VAC	0V.	370VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

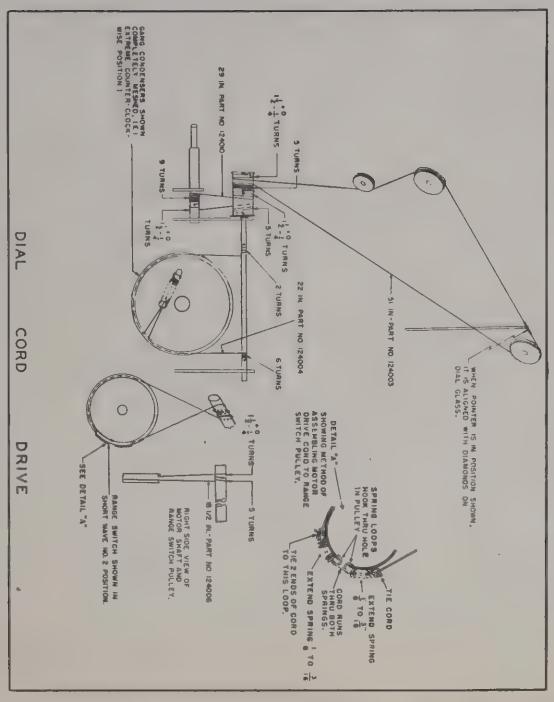
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	0Ω	.1Ω	0Ω	2.5 Meg.	0Ω	80KΩ	0Ω	32KΩ
2	6SB7Y	0Ω	.1Ω	11KΩ	8KΩ	33KΩ	.3Ω	0Ω	2.4 Meg.
3	6SG7	0Ω	.1Ω	0Ω	2.3 Meg.	0Ω	50KΩ	0Ω	11KΩ
4	6SH7	0Ω	.1Ω	0Ω	1 Meg.	0Ω	24KΩ	0Ω	11KΩ
* 5	6SJ7	0Ω	.1Ω	0Ω	23KΩ	0Ω	45KΩ	0Ω	110KΩ
* 6	6SJ7	0Ω	.1Ω	10KΩ	1.5 Meg.	10KΩ	20KΩ	0Ω	100KΩ
* 7	6H6	0Ω	.1Ω	220KΩ	0Ω	220KΩ	440KΩ	0Ω	440KΩ
* 8	6SQ7	0Ω	110KΩ	0Ω	0Ω	0Ω	700KΩ	0Ω	.1Ω
* 9	6SL7GT	1.4 Meg.	30KΩ	0Ω	1.4 Meg.	700KΩ	1.8KΩ	0Ω	.1Ω
* 10	6SQ7	0Ω	110KΩ	0Ω	260KΩ	260KΩ	1.5 Meg.	0Ω	.1Ω
11	6U5	-	-	-	-	-	-	-	-
12	6SQ7	0Ω	10 Meg.	0Ω	0Ω	0Ω	160KΩ	820Ω	820Ω
13	6SL7GT	15KΩ	160KΩ	560Ω	470KΩ	160KΩ	560Ω	.1Ω	0Ω
14	6L6G	0Ω	.1Ω	10KΩ	10KΩ	270KΩ	2.5 Meg.	0Ω	150Ω
15	6L6G	0Ω	.1Ω	10KΩ	10KΩ	270KΩ	15KΩ	0Ω	150Ω
16	5R4GY	INF.	10KΩ	INF.	33Ω	10KΩ	32Ω	INF.	10KΩ

*VOLTAGE AND RESISTANCE READINGS TAKEN IN HIGH FM BAND
†6.5VAC BETWEEN PINS 7 AND 8.

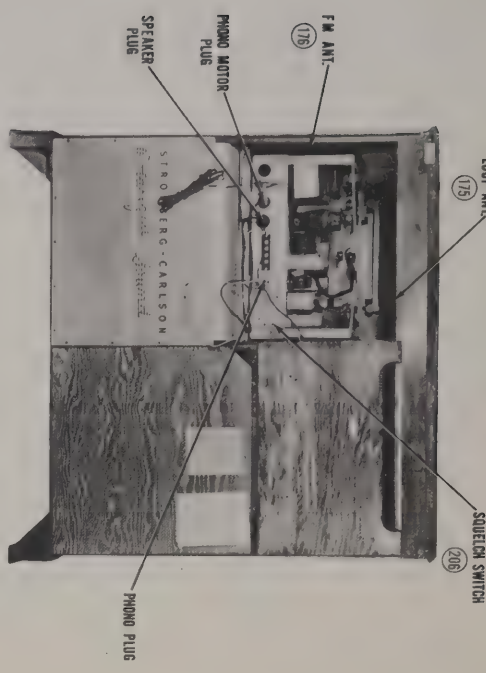
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.


DIAL CORD DRIVE
GANG CONDENSERS SHOWN COMPLETELY MESHED (I.E. FULL CLOCKWISE POSITION)
29 IN. PART NO 124001
22 IN. PART NO 124004
9 IN. PART NO 124003
5 TURNS
2 TURNS
6 TURNS
9 TURNS
SPRING POINTER IN POSITION SHOWN. IS ALIGNED WITH DIAMONDS ON DIAL GLASS.
SEE DETAIL "A"
RANGE SWITCH SHOWN IN SHORT WAVE NO. 2 POSITION
RIGHT SIDE VIEW OF RANGE SWITCH PULLEY
DETAIL "A"
SHOWING METHOD OF ATTACHING DIAL CORD TO RANGE SWITCH PULLEY.
SPRING LOOPS IN PULLEY HOLES
TIE 2 ENDS OF CORD TO THIS LOOP
EXTEND SPRING 5 TO 1/2
CORD RUNS UNDER SPRINGS
TIE CORD
EXTEND SPRING 5 TO 1/2

DISASSEMBLY INSTRUCTIONS

1. Remove two push-on type control knobs.
2. Remove screw holding round board over rear of speaker compartment.
3. Remove phono-motor plug from chassis.
4. Remove speaker plug from chassis.
5. Remove FM antenna leads from terminal strip on rear of chassis.
6. Remove loop antenna leads from terminal strip on rear of chassis.
7. Remove phono-pickup plug from chassis.
8. Remove four hex head and four round head slotted machine screws holding chassis in cabinet.
9. Remove four machine screws holding speaker in cabinet. Remove speaker from cabinet.



DATE 11/48-#4931-23 SSRT #49-FOLDER #23

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning cap. fully closed and set pointer with two diamonds on extreme left end of dial.
Use insulated alignment screwdriver for all adjustments exercising extreme care while adjusting IF slugs as they are very fragile.

AM IF ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	Direct	High side to Pin 8 (grid) of 6SB7Y. Low side to chassis.	455KC	BC (Depress radio button)	600KC	Across voice coil	A1,A2, A3,A4, A5,A6	Adjust for maximum output

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

If VTVM is not available, a 20,000Ω per volt DC Voltmeter may be used.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2	Direct	High side to Pin 8 (grid) of 6SB7Y. Low side to chassis.	10.7MC (Unmodulated)	Low FM (Depress last button on right on row of eight)	Channel 21	DC probe to Point ⏚ .Common to chassis	A7,A8, A9,A10 A11,A12	Adjust for maximum deflection.
3	Direct	High side to Pin 4 (grid) of 6SH7 2nd IF Tube (4). Low side to chassis.	"	"	"	DC probe to Point ⏚ .Common to chassis	A13	Adjust for maximum deflection.
4	Direct	"	"	"	"	DC probe to Point ⏚ .Common to chassis	A14	Adjust for zero deflection. Swing signal generator 75KC above and below 10.7 MC and record readings. If these are not equal repeat Steps 3 and 4 and check again, It may be necessary to adjust A13 slightly to get these readings equal. This adjustment is very critical as misalignment will cause distortion of FM reception. Continue with AM RF Alignment in Step 5.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ∿ modulation and 450KC sweep. Use 120 ∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
2	.01 MFD.	High side to Pin 4 (grid) of 6SQ7 1st IF Tube (3). Low side to chassis.	10.7MC (Freq. Mod.)	Low FM (Depress extreme right-hand push-button on row of eight)	Channel 21	Vertical input in series with .01 MFD. cap. to Point ⏚ .Ground to chassis	A7,A8, A9,A10	Adjust for maximum amplitude, symmetry and coincidence of pattern per Fig. 1.
3	.01 MFD	High side to Pin 8 (grid) of 6SB7Y. Low side to chassis.	"	"	"	"	A11,A12	"
4	.01 MFD	High side to Pin 4 (grid) of 6SQ7 1st IF Tube (3). Low side to chassis.	"	"	"	Vertical input to Point ⏚ . Ground to chassis.	A13, A14.	Alternately adjust A13 for maximum amplitude and A14 for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. Continue with AM RF Alignment in Step 5.

AM RF ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5	400Ω carbon res.	High side to AM antenna terminal (with loop connected). Low side to chassis.	1500KC	BC	1500KC	Across voice coil	A15, A16, A17	Adjust for maximum output in order given.
6	"	"	600KC	"	600KC	"	A18, A19, A20	Adjust for maximum output in order given. Repeat Steps 5 & 6 until no further improvement can be made.
7	"	"	10MC	SW (left SW Button)	10MC	"	A21	Adjust for maximum output.
8	"	"	"	"	Tune for maximum output.	"	A22, A23	Rock tuning cap. and adjust for maximum output.
9	"	"	12.4MC	SW (right SW Button)	12.4MC	"	A24	Adjust for maximum output.
10	"	"	"	"	Tune for maximum output.	"	A25, A26	Rock tuning cap. and adjust for maximum output.

FM RF ALIGNMENT

When adjusting low FM band connect high side of signal generator to left dipole terminal thru 39Ω, connect low side to right dipole terminal thru 39Ω and connect low side of signal generator to chassis. For adjusting high FM band reverse connection of 39Ω resistors on dipole terminals. Keep low side of signal generator connected to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11	39Ω carbon res. (Dipole disconnected)	See prealignment instructions.	49MC (Unmodulated)	Low FM	Channel 90	DC probe to Point ⏚ .Common to chassis	A27	Adjust for maximum deflection.
12	"	"	"	"	Tune for maximum deflection.	"	A28, A29	Rock tuning cap. and adjust for maximum deflection.
13	"	"	106MC	High FM (3rd button from right end of row of eight buttons)	Channel 290	"	A30	Adjust for maximum deflection.
14	"	"	"	"	Tune for maximum deflection.	"	A31, A32	Rock tuning cap. and adjust for maximum deflection.

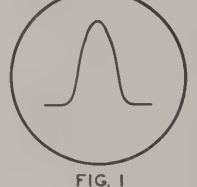


FIG. 1

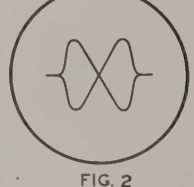
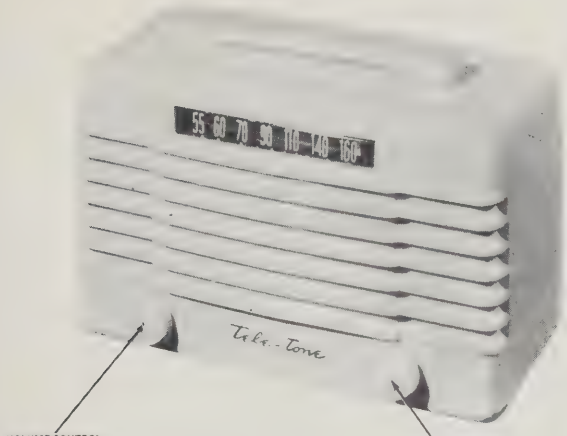
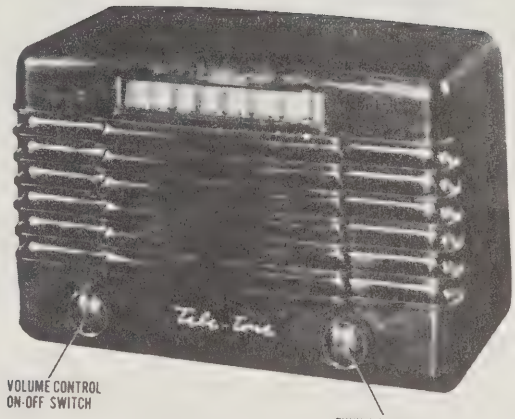


FIG. 2



MODEL 166



MODEL 157

TELE-TONE MODELS
157, 166 (Ch. AE)

TELE-TONE MODELS
157, 166 (Ch. AE)

TRADE NAME	Teletone, Models 157, 166 (Ch. AE)
MANUFACTURER	Teletone Radio Co., 540 W. 58th St., New York 19, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1620KC	"	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A4	Adjust for maximum output.

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DATE 11/48-#4819-24 SET #49-FOLDER #24

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		TELE-TONE PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	2nd Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	TELE-TONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
6A	20	150		PRSA150/20-20	EZ42215	DSB-3x20-150	TA-303	Filter-Blue
B	20	150						" -Green
C	20	150		PRS150/20				" -Red
7	.02	600		684-02	DT6S2	ST-6-02	TC-12	Line Filter
8	.05	200		484-05	DT4S5	ST-4-05	72P1	Line Isolation
9	.02	400		484-02	DT4S2	ST-4-02	TC-12	Output Plate Bypass
10	.002	400		484-002	DT6D2	ST-6-002	TC-22	Audio Coupling
11	.05	200		484-05	DT4S5	ST-4-05	TC-15	AVC Filter
12	10000	300		484-01	DT6S1	ST-6-01	TC-11	Audio Coupling
13	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	Diode RF Filter-Cer.
14	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	IF Coupling-Cer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	TELE-TONE PART No.	IRC PART No.	CLAROSTAT PART No.	
15	2 Meg.	½	VC-12			Volume Control & Switch

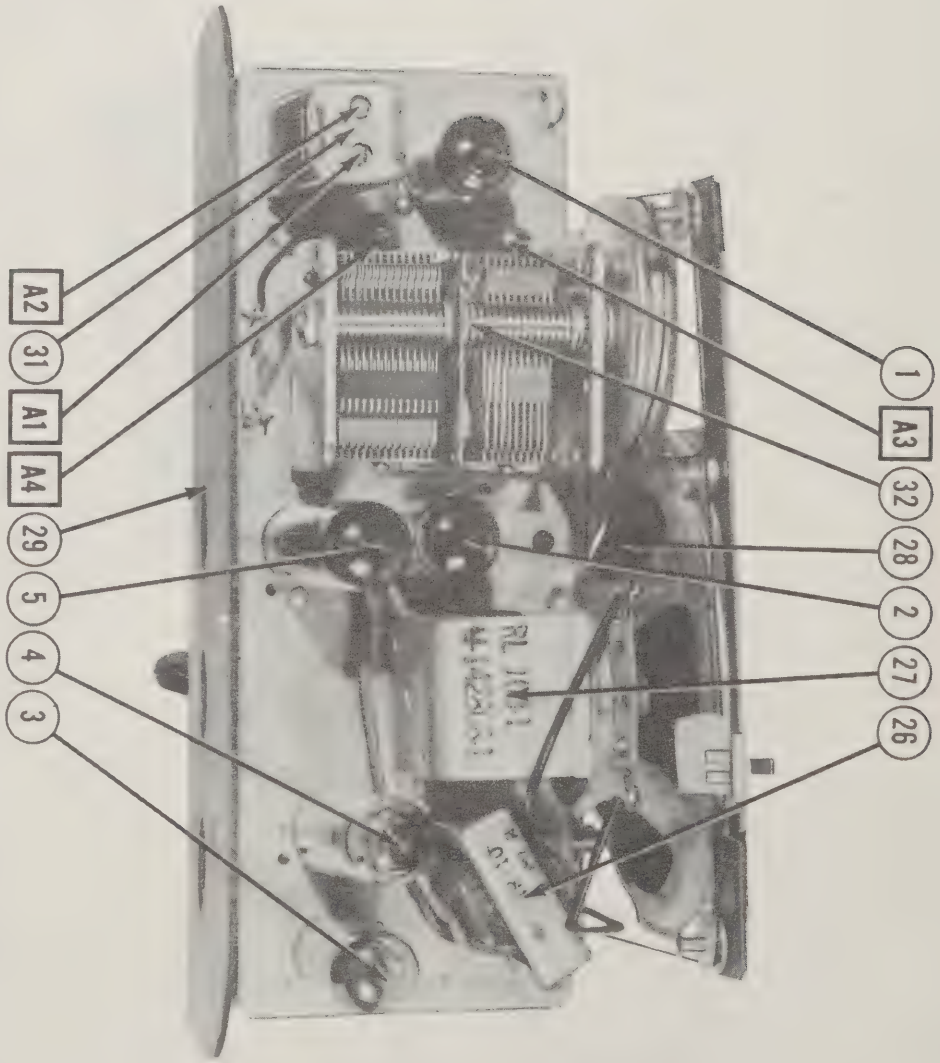
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TELE-TONE PART No.	IRC PART No.	
16	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
17	6800Ω	½		BTS-6800	Blue-Gray-Red IF Plate
18	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Diode Filter
19	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
20	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	1500Ω	1		BTA-1500	Br.-Grn.-Red Filter
25	150Ω	1		BW-1-150	Br.-Grn.-Br. "

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TELE-TONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
26	2100Ω	4.0Ω	285Ω	.7Ω	TR-10				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

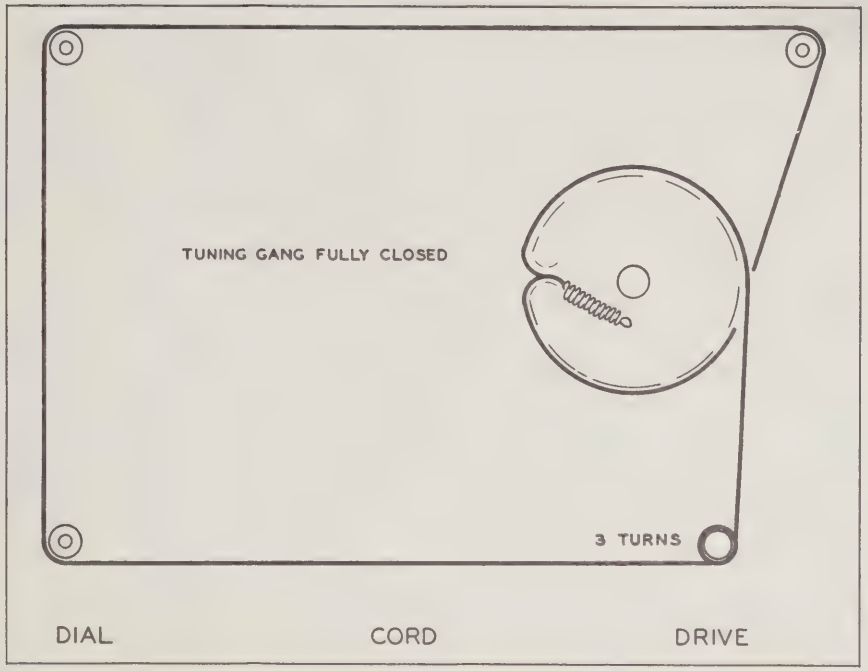
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TELE-TONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD RES.	VC IMP.				†Drill and tap magnet frame and trim flange.
27	PM	4.0Ω	RL108-1		4A1†	
	CONE DIA.	VC DIA.				
28	4"	9/16"				

R F COILS

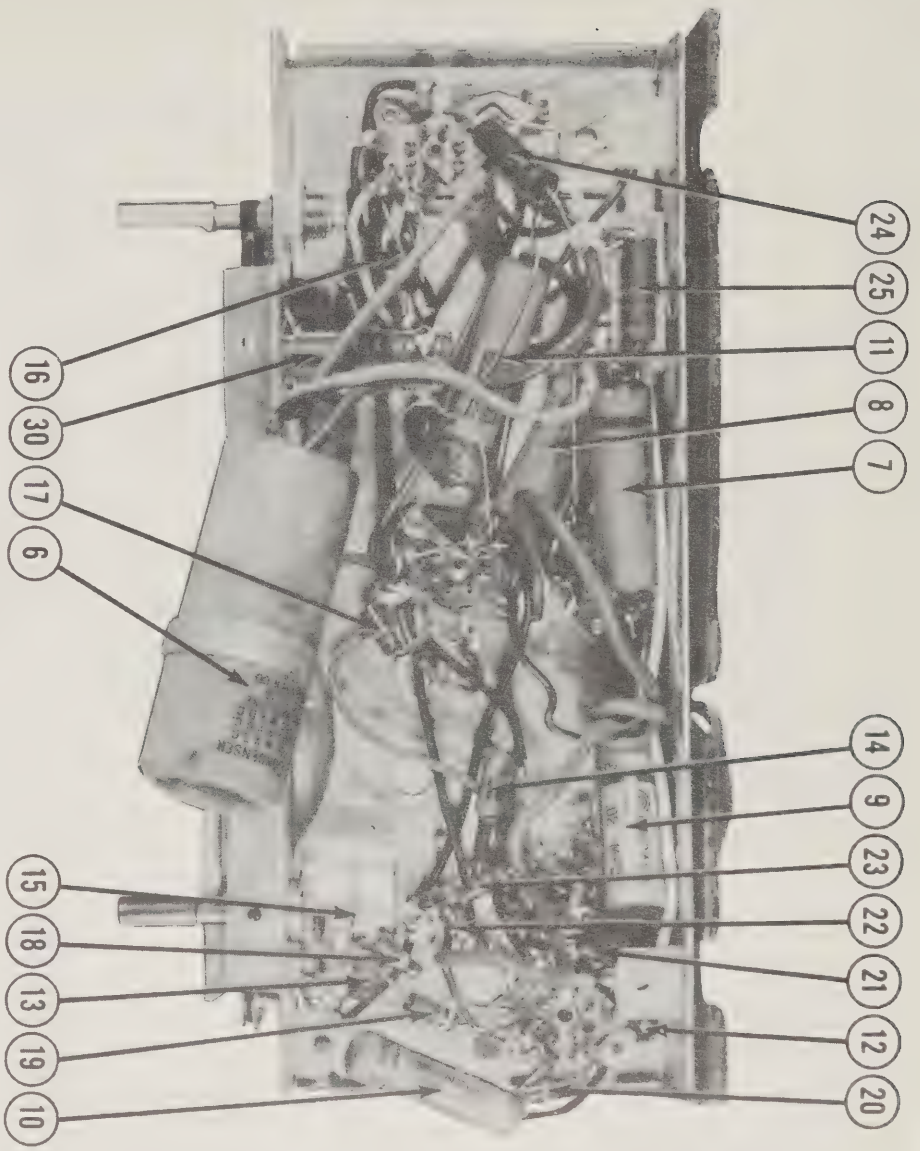
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TELE-TONE PART No.	MEISSNER PART No.	
29	Loop Ant.		3Ω			
30	Osc. Coil	1Ω	5.8Ω		14-1060*	*Add 50 MMFD from high side tuning cap. to osc. grid.
31	IF Trans.	14.8Ω	14.8Ω		16-6678	

MISCELLANEOUS

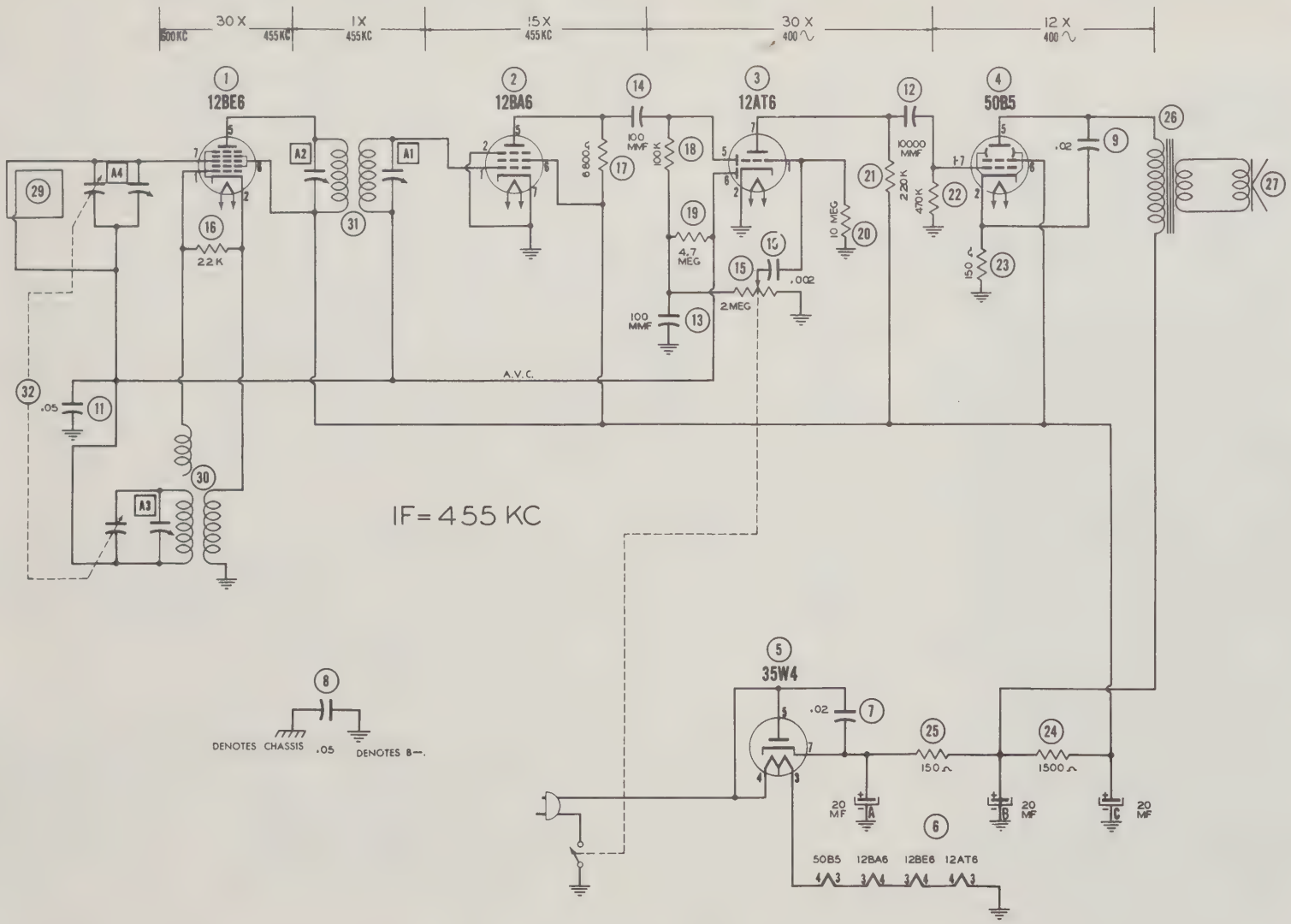
ITEM No.	PART NAME	TELE-TONE PART No.	NOTES
32	2 Gang Var. Cap.		(35-462MMF, 30-189MMF)



CHASSIS—BOTTOM VIEW



TELE-TONE MODELS 157, 166



Pin No.	12BE6 Volt.	12BE6 Res.	12BA6 Volt.	12BA6 Res.
1	-5.5VDC§	22KΩ	-.4VDC	6 Meg.
2	0V.	1Ω	0V.	0Ω
3	23VAC	24Ω	35VAC	36Ω
4	11VAC	12Ω	23VAC	24Ω
5	118VDC	350KΩ	30VDC	350KΩ
6	118VDC	350KΩ	118VDC	350KΩ
7	-.4VDC	6 Meg.	0V.	0Ω

Pin No.	12AT6 Volt.	12AT6 Res.	50B5 Volt.	50B5 Res.
1	-.4VDC	10 Meg.	0V.	500KΩ
2	0V.	0Ω	5.2VDC	150Ω
3	0V.	0Ω	35VAC	36Ω
4	11VAC	12Ω	85VAC	87Ω
5	-.3VDC	2 Meg.	107VDC	350KΩ
6	-.4VDC	6 Meg.	118VDC	350KΩ
7	47VDC	570KΩ	0V.	500KΩ

Pin No.	35W4 Volt.	35W4 Res.
1	0V.	INF.
2	0V.	INF.
3	85VAC	87Ω
4	117VAC	120Ω
5	117VAC	120Ω
6	112VAC	110Ω
7	127VDC	350KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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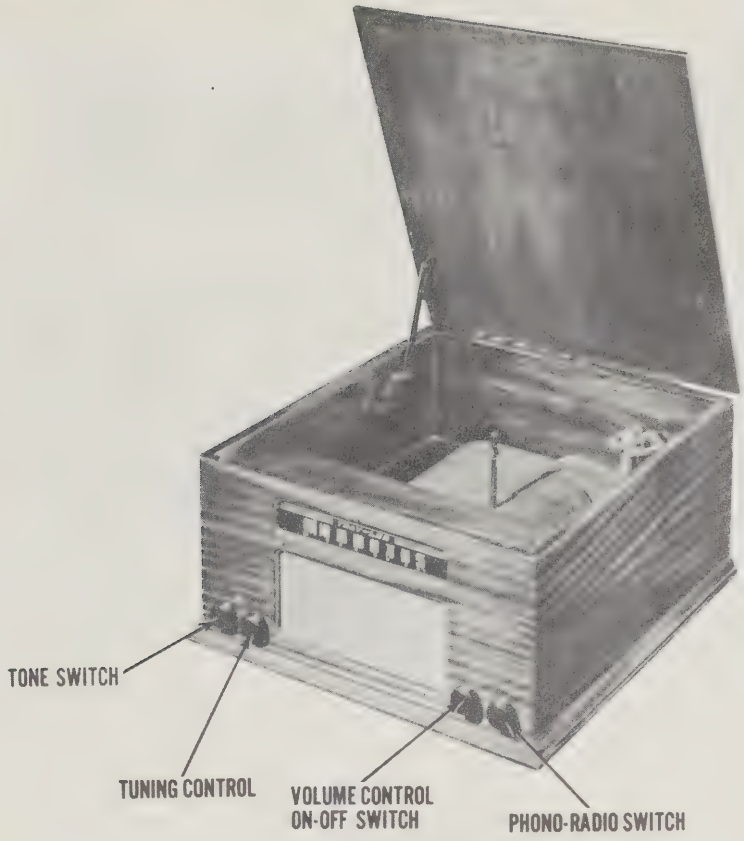
4819-24

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRAV-LER
MODEL 6040



TRAV-LER
MODEL 6040

TRAV-LER MODEL 6040

TRADE NAME	Trav-Ler, Model 6040
MANUFACTURER	Trav-Ler Radio & Tel. Corp., 571 W. Jackson, Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio, Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7 Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1720KC RATING .23 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Connect 20KΩ resistor across loop input terminals for Steps 1 & 2.
Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal gnerator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	.1 MFD.	"	1720KC	"	"	A5	Adjust for maximum output.
3		Loop	1400KC	Tune for maximum output.	"	A6	Remove 20KΩ resistor from loop terminals. Connect loop to receiver. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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DATE 11/48-#4819-25 SET #49-FOLDER #25

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	EC-14	PRSA150/40-40	EZ443150*	DSB403020-150	TA-303	Filter-Red
B	40	150						" -Blue
C	20	150		PRS150/20				" -Yellow
8	10	75		PRS50/10	BR105	M-10-50	TA-510	Cathode Bypass
9	.05	400	PC-5	484-05	DT4S5	ST-4-05	TC-15	Line Filter
10	.1	400	PC-8	484-.1	DT4P1	ST-4-1	72P2	Line Isolation
11	.01	400	PC-7	484-01	DT4S1	ST-4-01	TC-11	Output Plate Bypass
12	.01	400	PC-7	484-01	DT4S1	ST-4-01	TC-11	Audio Coupling
13	.01	400	PC-7	484-01	DT4S1	ST-4-01	TC-11	" "
14	.05	400	PC-5	484-05	DT4S5	ST-4-05	TC-15	Phono Isolation
15	.05	400	PC-5	484-05	DT4S5	ST-4-05	TC-15	AVC Filter
16	.05	400	PC-5	484-05	DT4S5	ST-4-05	TC-15	Tone Compensation
17	500	300	MC-5	1468-0005	5W5T5	MO.5-35	1FM-35	AF Plate Bypass-Cer.
18	100	500	MC-2	1468-0001	5W5T1	MO.5-31	1FM-31	Diode RF Filter
19	500	300	MC-5	1468-0005	5W5T5	MO.5-35	1FM-35	Tone Comp.-Cer.
20	70	500		1469-00007	5W5Q7	MOS.5-47	MS-47	Osc. Grid Cap.
21	100	500	MC-2	1468-0001	5W5T1	MO.5-31	1FM-31	Rr Coupling

CONTROLS

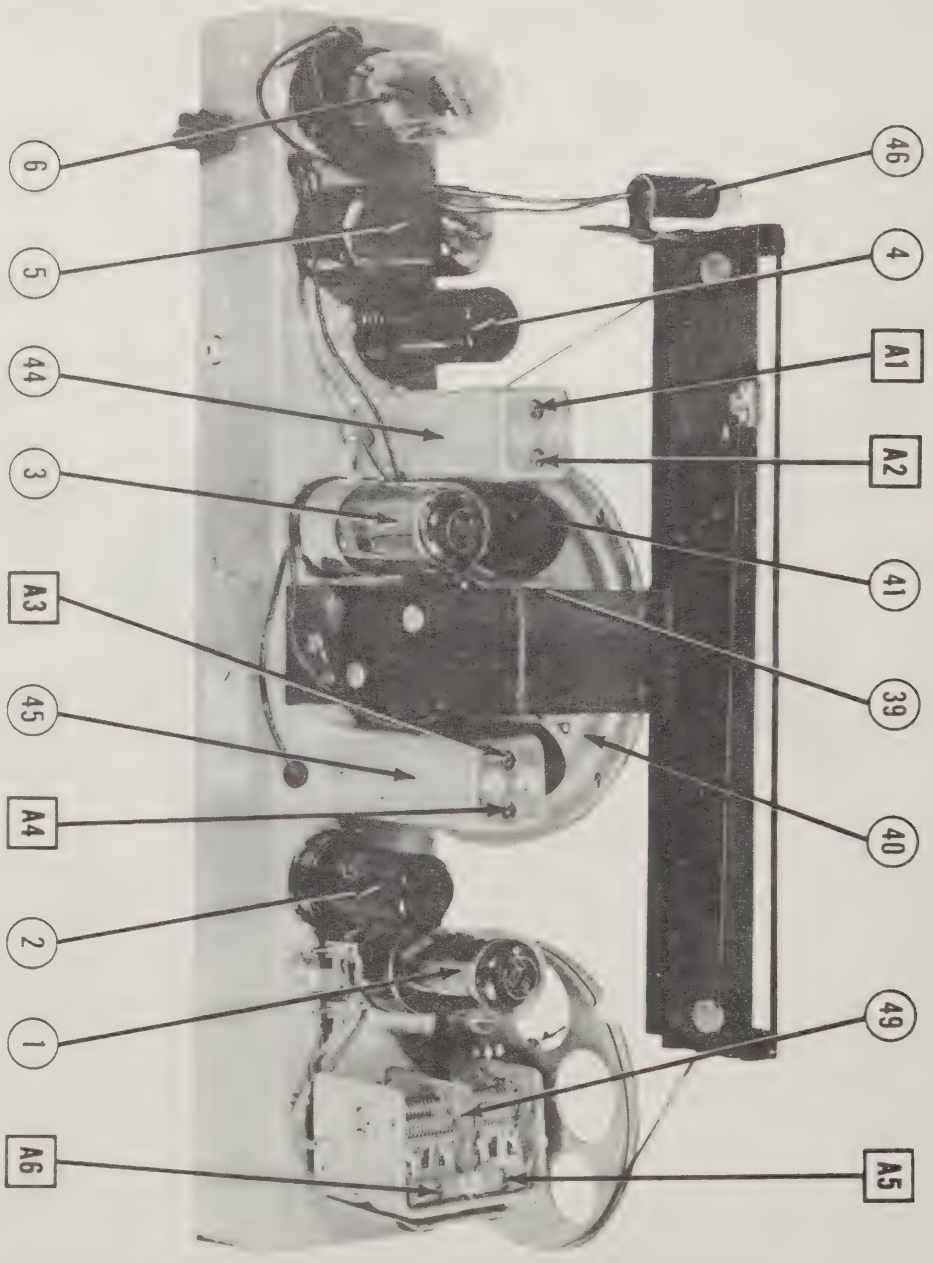
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	1 Meg.	½	VC-4	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 22A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	IDENTIFICATION CODES
23	2200Ω	1		BTA-2200	Red-Red-Red RF Plate Load
24	47KΩ	½	1R-10	BTS-47K	Yl.-Vi.-Or. Converter Grid
25	22KΩ	½	1R-9	BTS-22K	Red-Red-Or. Oscillator Grid
26	3.3 Meg.	½	1R-23	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
27	47KΩ	½	1R-10	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
28	2.2 Meg.	½	1R-13	BTS-2.2 Meg.	Red-Red-Grn. AF Grid
29	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load-See Note
30	470KΩ	½	1R-11	BTS-470K	Yl.-Vi.-Yl. Output Grid
31	150Ω	½	1R-14	BW-½-150	Br.-Grn.-Br. Output Cathode
32	1000Ω	1	1R-42	BTA-1000	Br.-Blk.-Red Filter
33	470Ω	½	1R-1	BTS-470	Yl.-Vi.-Br. "
34	33Ω	½	1R-17	BW-½-33	Or.-Or.-Blk. Surge Limiter
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Series Phono-See Note
36	220KΩ	½	1R-20	BTS-220K	Red-Red-Yl. Phono Shunt
37	220KΩ	½	1R-20	BTS-220K	Red-Red-Yl. Line Isolation
38	2200Ω	½	1R-15	BTS-2200	Red-Red-Red Tone Compensation

Note-Some models may use 470KΩ in this application. Replacement same as Item #30.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRAV-LER PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
39	2000Ω	3.3Ω	175Ω	.6Ω	Part of SPK-12	A-3876#	T22S45#	A-2928#	#Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRAV-LER PART No.	JENSEN PART No.	QUAM PART No.	
40	FIELD PM	VC IMP. 3.3Ω	SPK-12	ST-105† Mod. P5-X	5A15†	†Drill and tap magnet frame and trim flange.
41	CONE DIA. 4"	VC DIA. 9/16"				

R F COILS

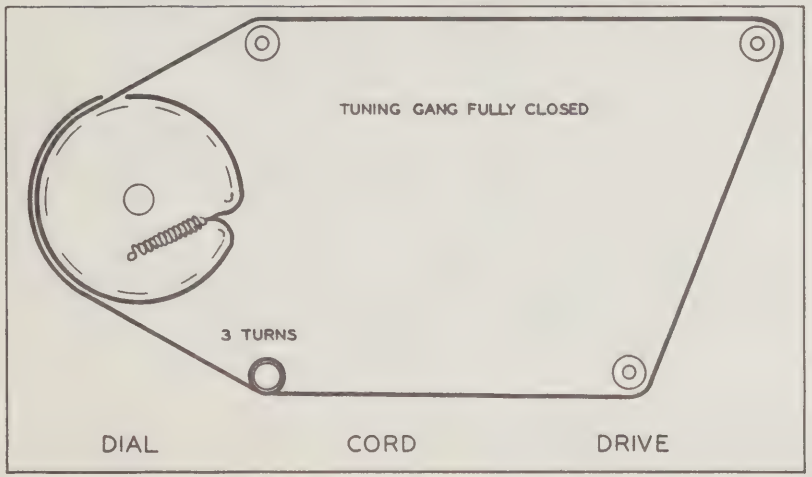
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.
42	Loop Ant.		2.4Ω	LL-17	
43	Osc. Coil	.7Ω	6Ω	LO-15	14-1060
44	Input IF	19.5Ω	19.5Ω	LI-6	16-6666
45	Output IF	20.5Ω	20.5Ω	LI-7	16-6667

DIAL LIGHT

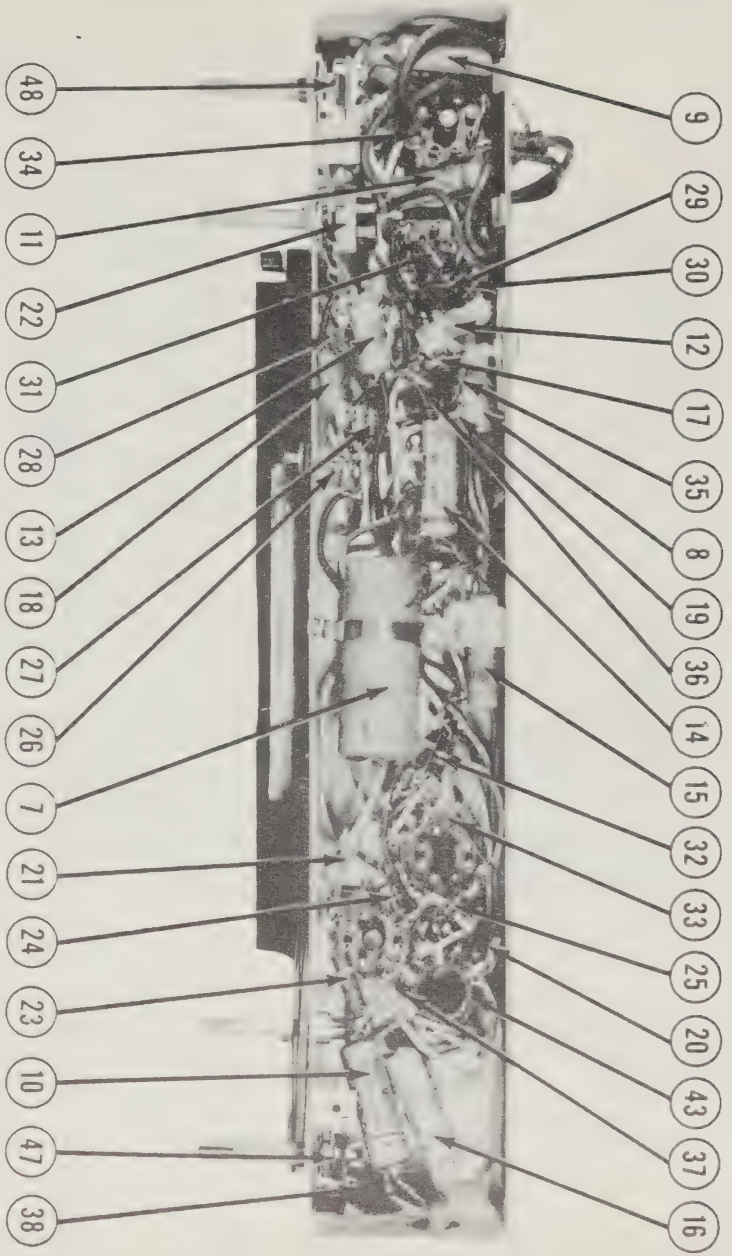
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRAV-LER PART No.		
46	Bayonet	6-8	0.15	Brown			Type 47

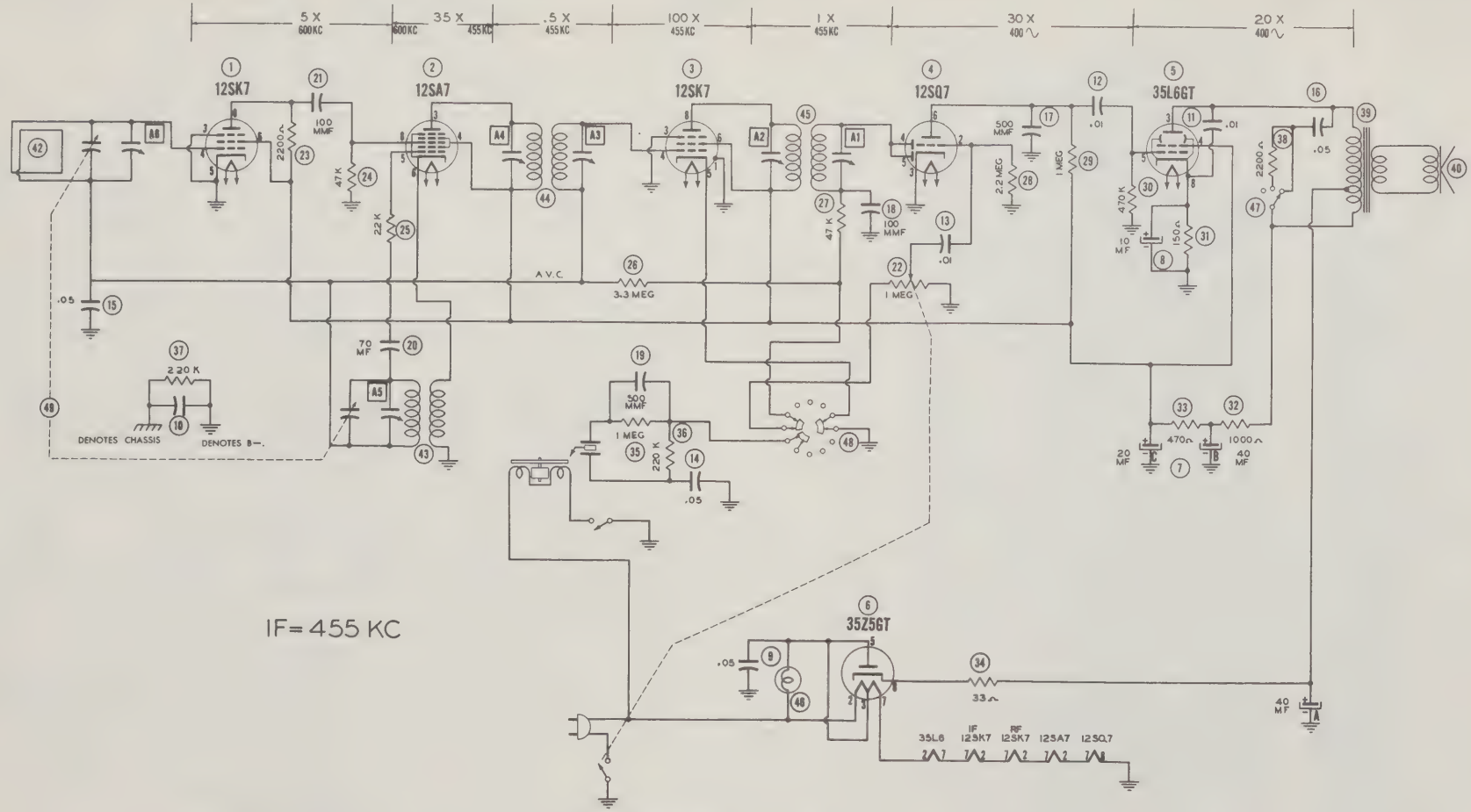
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
47	Switch	SW-2	Tone
48	"	SW-1	Radio-Phono
49	2 Gang Var.Cap.	GC-5	(27-467MMF, 29-191MMF)



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	24VAC	0V.	-.5VDC	0V.	73VDC	38VAC	55VDC
2	12SA7	0V.	12VAC	73VDC	73VDC	-5VDC§	0V.	24VAC	0V.
3	12SK7GT	0V.	38VAC	0V.	-.5VDC	0V.	73VDC	50VAC	73VDC
4	12SQ7	0V.	-.6VDC	0V.	-.5VDC	-.5VDC	28VDC	12VAC	0V.
5	35L6GT	0V.	85VAC	110VDC	73VDC	0V.	0V.	50VAC	3.6VDC
6	35Z5GT	0V.	117VAC	112VAC	117VAC	112VAC	115VDC	85VAC	117VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	220KΩ	.04Ω	0Ω	5 Meg.	0Ω	60KΩ	36Ω	62KΩ
2	12SA7	220KΩ	12Ω	60KΩ	60KΩ	22KΩ	.7Ω	24Ω	47KΩ
3	12SK7GT	220KΩ	36Ω	0Ω	5 Meg.	0Ω	60KΩ	50Ω	60KΩ
4	12SQ7	220KΩ	2.2 Meg.	.Ω	1 Meg.	1 Meg.	1 Meg.	12Ω	0Ω
5	35L6GT	220KΩ	80Ω	30KΩ	60KΩ	470KΩ	0Ω	50Ω	150Ω
6	35Z5GT	220KΩ	110Ω	105Ω	110Ω	105Ω	60KΩ	80Ω	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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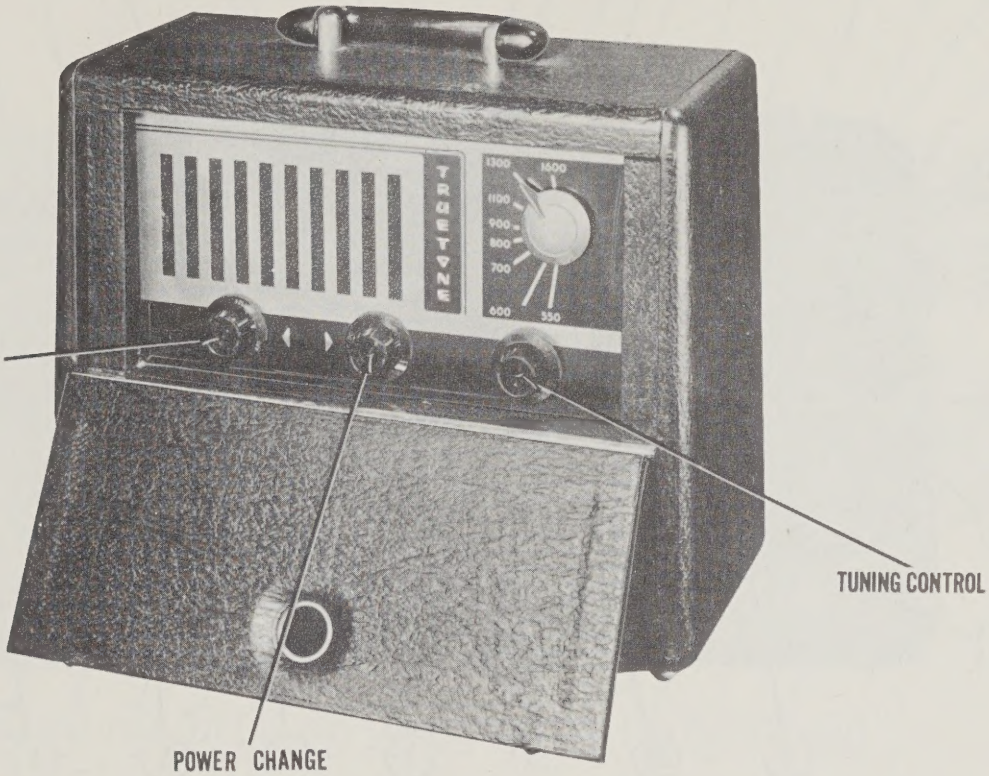
4819-25

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TRUETONE MODEL D3840
BATTERY-LINE OPERATED



TRUETONE MODEL D3840
BATTERY-LINE OPERATED

TRUETONE MODEL D3840

TRADE NAME	Truetone, Model D3840
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 117Z3 Rectifier.
POWER SUPPLY RATING	105-125 Volts AC-DC or 9.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form .17 Amp. @ 117 Volts AC or 57MA @ 9.5 Volts DC and 16MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Remove chassis from cabinet only far enough to gain access to trimmer adjustments during alignment. Battery must be in place as its position affects alignment of loop.

Use battery power when available. If AC power is used, use isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1		Wrap few turns of sig. gen. lead around cabinet.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		"	1620KC	"	"	A5	" " " "
3		"	1400KC	Tune for maximum output.	"	A6	" " " "
4		"	"	"	"	A7	Replace receiver completely into cabinet and adjust A7 for maximum output.

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DATE 11/48-#4819-26 SET #49-FOLDER #26

PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D3840

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1U4	1U4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1U4	1U4	6AR	
4	Det.-AVC-AF	1H5GT	1H5GT	5Z	
5	Power Output	3Q5GT	3Q5GT	7AP	
6	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	506492	AF886D4A†	UP7DJ63	DY-304#	EL-351	● Filter
B	20	150		PRS25/100		M-20-150	UT-201	■ "
C	20	150						▲ "
D	100	25						Fil. Bypass
8	.05	400	512028	484-05	DT4S5	ST-4-05	TC-15	Line Filter
9	.15	400	512040	484-.15	DT4P2	ST-4-2	72P3	Line Isolation
10	.002	600	512002	684-002	DT6D2	ST-6-002	TC-22	Output Plate Bypass
11	.01	200	512008	484-01	DT2S1	ST-4-01	TC-11	Audio Coupling
12	.1	200	512032	484-.1	DT2P1	ST-2-1	TC-1	AF Plate Decoup.
13	.25	200	512044	484-.25	DT2P25	ST-2-25	TC-2	Fil. Bypass
14	.25	200	512044	484-.25	DT2P25	ST-2-25	TC-2	" "
15	.02	200	512014	484-02	DT2S2	ST-4-02	TC-12	IF Grid Filter
16	.05	200	512026	484-05	DT2S5	ST-4-05	TC-15	AVC Filter
17	.01	200	512008	484-01	DT2S1	ST-4-01	TC-11	Osc. Decoupling
18	.05	200	512026	484-05	DT2S5	ST-4-05	TC-15	RF Bypass
19	100	300	506340	1468-0001	5W5T1	MO.5-31	1FM-31	AF Plate Byp.-Cer.
20	5000	300	505873	1467-005	1D5D5	MW.5-25	1FM-25	Audio Coupling "
21A	100	300	*	1468-0001	5W5T1	MO.5-31	1FM-31	Diode RF Filter "
B	100	300		1468-0001	5W5T1	MO.5-31	1FM-31	" " "
22	22	300	504973	1468-000025	5W5Q25	MO.5-425	MS-425	Osc. Grid Cap. "
23	100	300	506340	1468-0001	5W5T1	MO.5-31	1FM-31	RF Coupling "
24	100	300	506340	1468-0001	5W5T1	MO.5-31	1FM-31	" " "
25	100	300	506340	1468-0001	5W5T1	MO.5-31	1FM-31	Ext. Ant. Coup. "

†Omit bypass section. #Install new mounting socket.

*Items #21A & B and #33 are combined into one unit obtainable under Part #506338.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	1 Meg.	½	506497	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 26A per instructions
C	Switch		" "	42	SW-A2	" " " " "

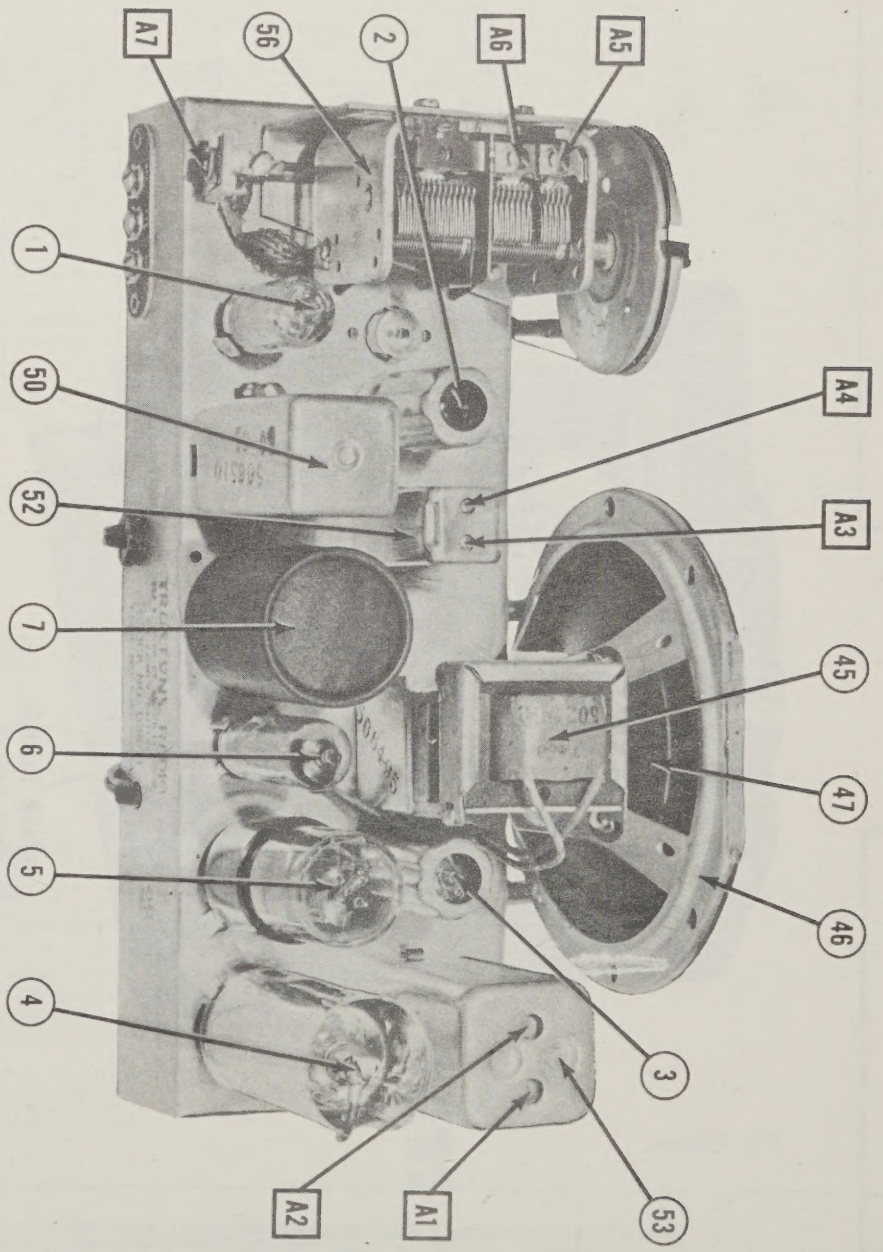
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
27	2.2 Meg.	½	510193	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
28	2.2 Meg.	½	510193	BTS-2.2 Meg.	Red-Red-Grn. Conv. Grid
29	100KΩ	½	510173	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
30	6800Ω	½	510152	BTS-6800	Blue-Gray-Red Osc. Decoupling
31	3.3 Meg.	½	510194	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
32	2.2 Meg.	½	510193	BTS-2.2 Meg.	Red-Red-Grn. IF Grid
33	47KΩ	½	*	BTS-47K	Diode RF Filter
34	3.3 Meg.	½	510194	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
35	1 Meg.	½	510191	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
36	470KΩ	½	510185	BTS-470K	Yl.-Vi.-Yl. AF Plate Decoupling
37	2.2 Meg.	½	510193	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
38	750Ω	½	510711	BTS-820	Vi.-Grn.-Br. Filter
39	33Ω	1	510210	BW-1-33	Or.-Or.-Blk. Surge Limiter
40	1700Ω	10	510710	ABA-2000	Filament Dropping-See Note 1
41	100Ω	½	510119	BW-½-100	Br.-Blk.-Br. Filter
42	180Ω	½	510123	BW-½-180	Br.-Gray-Br. Filament String
43	560Ω	½	510132	BTS-560	Grn.-Blue-Br. " "
44	330Ω	½	510127	BW-½-330	Or.-Or.-Br. " "

*Items 21A, 21B & 33 can be obtained as one unit under Part #506338.

Note 1-On IRC replacement set slider at 1700Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
45	7100Ω	3.3Ω	460Ω	.35Ω	502902	A-3876§	T22847§	A-2031§	§Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-105‡		‡Fabricate new mounting bracket.
46	PM	3.3Ω	506495	Mod. P5-X	5A15‡	
	CONE DIA.	VC DIA.				
47	4-3/4"	9/16"				

R F COILS

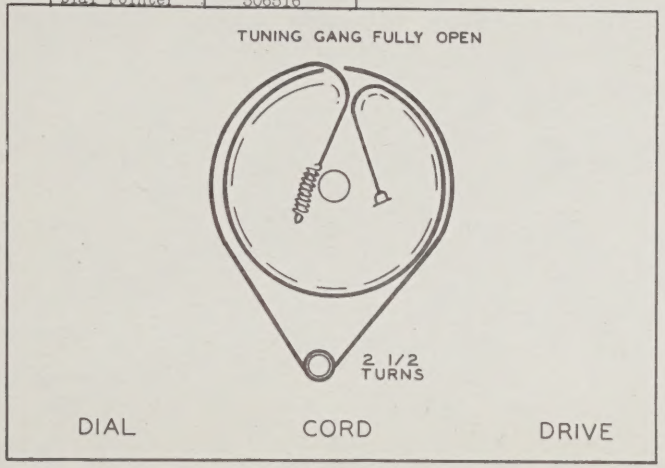
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.
48	Loop Ant.		.8Ω	506512	
49	Ant. Coil		2Ω	506511	
50	RF Coil	9Ω	11Ω	506510	
51	Osc. Coil	.8Ω	3.5Ω	506509	14-1060
52	Input IF	13Ω	13Ω	506493	16-6668
53	Output IF	23.5Ω	22.5Ω	506494	

BATTERIES

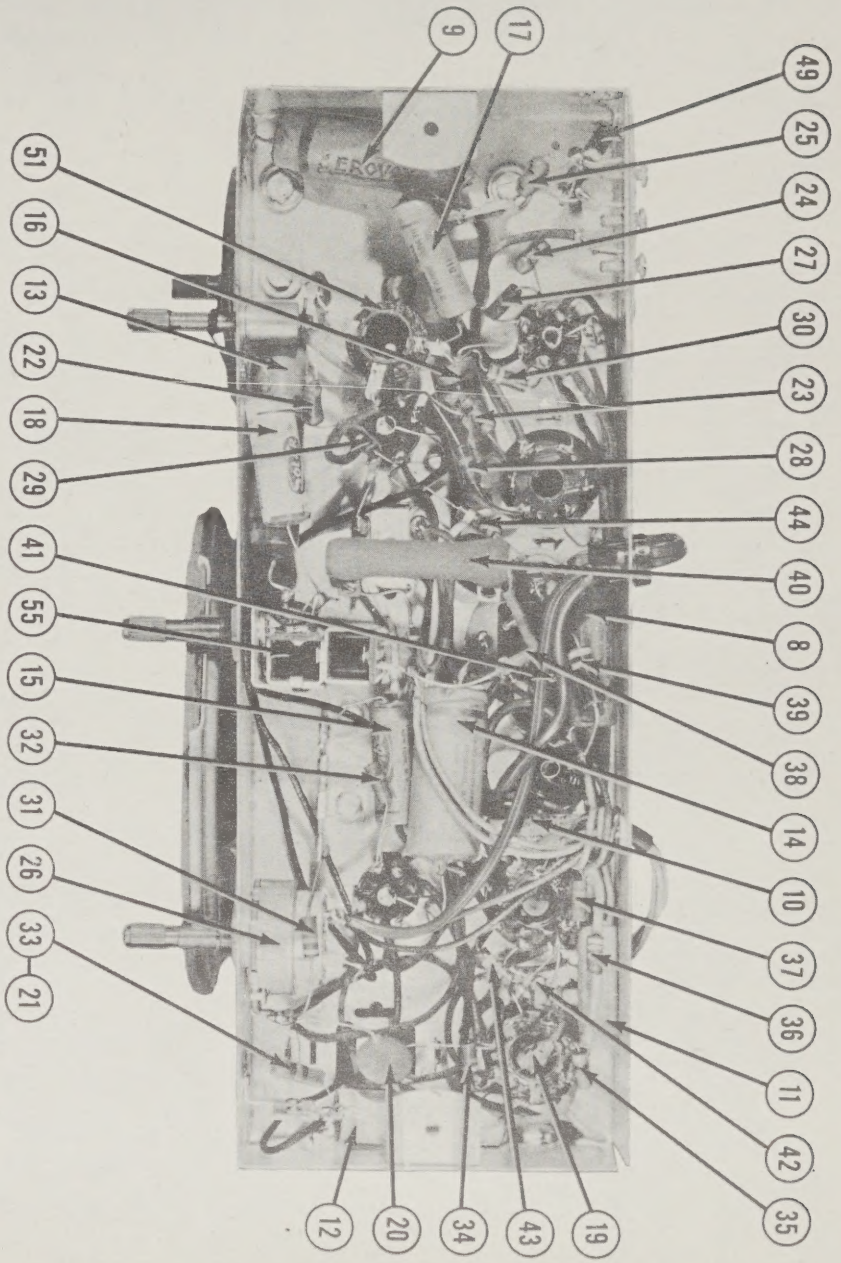
ITEM No.	VOLTAGE	TRUETONE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
54	9.5V "A" 90V "B"				753			F6A60	

MISCELLANEOUS

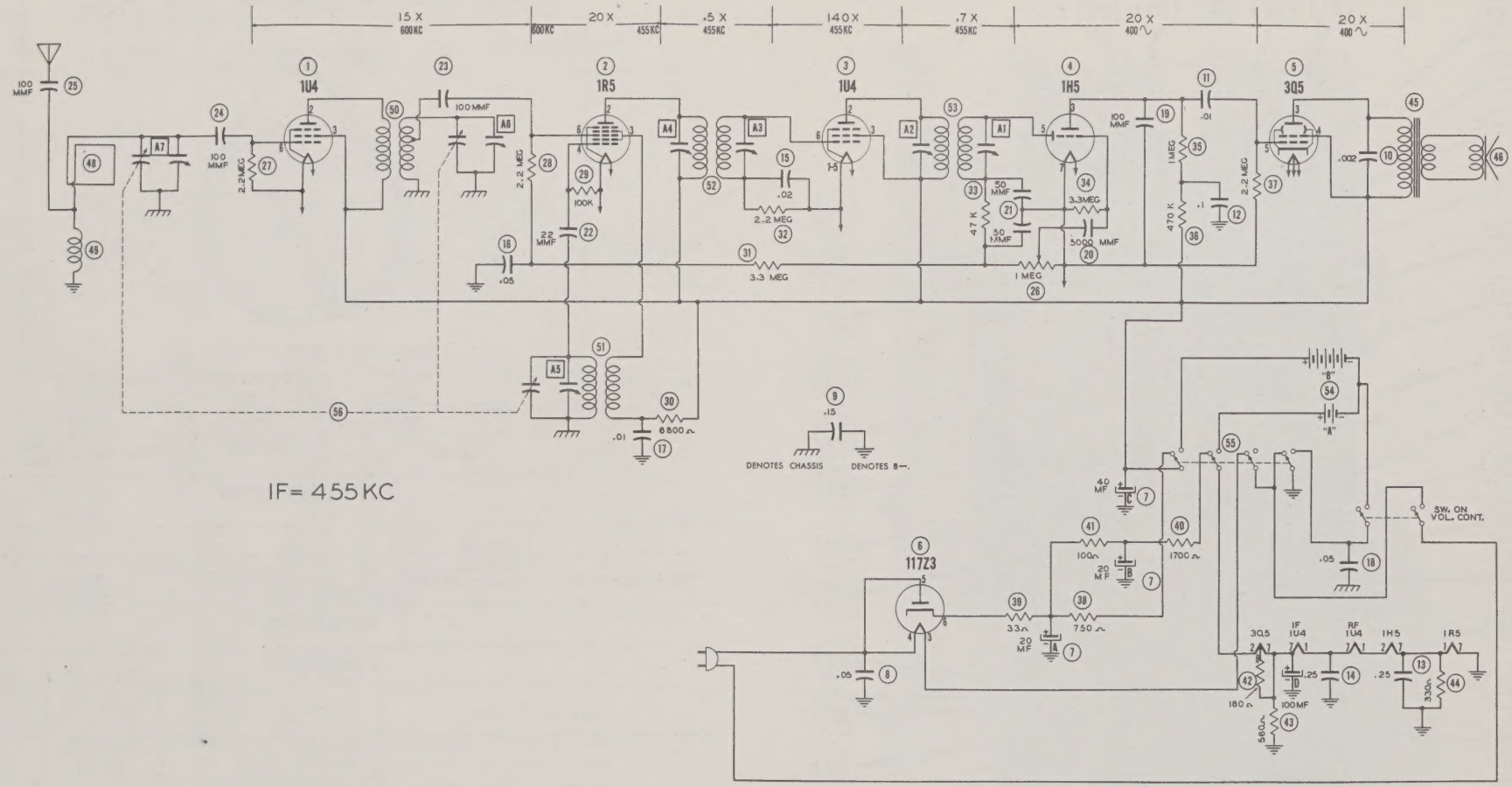
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
55	Switch	506498	AC/DC-Batt.
56	3 Gang Var.Cap.	506496	(20-456MMF, 19-242MMF, 15-107MMF)
	Cabinet	506423	
	Dial Pointer	506516	



CHASSIS—BOTTOM VIEW



TRUETONE MODEL D3840



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VOLTAGE READINGS

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1U4	3VDC	95VDC	95VDC	0V.	3VDC	.2VDC	4.6VDC	-	-
2	1R5	1.5VDC	95VDC	72VDC	-8.6VDC§	1.5VDC	.1VDC	0V.	-	-
3	1U4	4.6VDC	95VDC	95VDC	0V.	4.6VDC	.4VDC	6.1VDC	-	-
4	1H5GT	0V.	3VDC	40VDC	82VDC	.2VDC	0V.	1.6VDC	0V.	0V.
5	3Q5GT	0V.	6.1VDC	92VDC	95VDC	0V.	1.5VDC	6.1VDC	7.6VDC	-
6	117Z3	0V.	0V.	0V.	117VAC	117VAC	112VDC	0V.	-	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1U4	*	2.7KΩ	2.7KΩ	0Ω	*	2.2 Meg.	*	-	-
2	1R5	*	2.7KΩ	10KΩ	100KΩ	*	6 Meg.	0Ω	-	-
3	1U4	*	2.7KΩ	2.7KΩ	INF.	*	2.2 Meg.	*	-	-
4	1H5GT	INF.	*	1.5 Meg.	500KΩ	1 Meg.	0Ω	*	3.5 Meg.	3.5 Meg.
5	3Q5GT	0Ω	*	3KΩ	2.7KΩ	2.2 Meg.	*	*	*	-
6	117Z3	INF.	INF.	0Ω	440Ω	44Ω	2KΩ	INF.	-	-

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to Pin 7 of 1H5GT.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.